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ECONOMIC SURVEY
OF
AGRICULTURE

By

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To

NIPUN, ABHA

and

BIPAN

PREFACE

Ever since the publication of my *Principles of Agricultural Economics,* several suggestions have been received from students and teachers, researchers and administrators, and, above all, experts and critics, that I should write, on the same lines, a shorter book, which may be useful even to the uninitiated. *Economic Survey of Agriculture* is an earnest effort in that direction. Though a conscious attempt has been made at selective condensation and effective simplification of the argument therein, yet the "pragmatism" (to borrow a term from one of the reviews of my *Principles*) has not been diluted. Of course, some minor details are omitted, while others referred to only in passing; still, the core of the thesis has been retained intact. This book is written with an eye on the student and the layman; "summary and conclusion" and "exercises" have, therefore, been appended to each chapter.

Happily, agricultural economics is now accorded parity with other kindred studies, and treated with due deference. The realisation that it is a discipline, distinctly indispensable for planners and policy-makers, in India and other similarly-situated countries, has, after all, dawned upon those academicians who had, so far, dismissed it as merely an application of the theory evolved in industrial economies. I have, however, been able to rediscover the pragmatic strain in these studies, in the light of the reviews of my *Principles*—this *Survey* may have been biassed accordingly. Frankly, I would like even pure theorising to be realistic in its approach; for this attitude, I crave the indulgence of my seniors and critics.

Conscious as I am of my failings and limitations, I shall feel obliged for any suggestions designed to improve the treatment—no efforts will be spared to cater to the needs of the readers, particularly, of the students, who have been uppermost in my mind. I shall be failing in my duty if I did not record my "thanks" to Professor J. M. L. Bhatnagar, for his valuable comments; to Shri Vidya Bhushan for his helpful suggestions; to Shri S. M. Agarwal, for arranging its publication, at a very short notice; and Mr. W. M. Coutinho (R.M.D.C., Press) for his skilful help. It is not possible to express my sense of gratitude to my wife but for whose patience, this manuscript would never have been completed to a finish.

B. N. PAL

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CHAPTER I

BASIC CONSIDERATIONS

Introduction—What is Agriculture?: Agriculture as a Science and an Art: The Inference. Substance of Agriculture—Agricultural Sciences: Farm Equipment. Scope of Agricultural Economics—Economic Activities: Its Departments: The Linkage. Elementary Economics—Scope of Economics: Production to Distribution: Monetisation Aspects: Problems and Policies: Economic Analysis. Socio-Economic Motivation in Agriculture —Agriculturists' Motives: Economic Incentives: Attractives and Agriculture: Ideals of Farmers: Problems of Motivation. Summary and Conclusions. Select Exercises and Questions.

AGRICULTURE is the most basic of all human callings. In its widest aspects, it includes all forms of soil production, forestry, fisheries, horticulture, and cropping. Even in the modern industrial world, it is easily the biggest profession. Agriculture is an overall branch of knowledge. A farmer, in order to make a decent living, must know, not only the technical side of farming, but also its economic aspects. This chapter explains the basic introductory concepts of agricultural economics, and attempts a descriptive survey of the subject matter. The first section deals with the importance of agriculture, while the next one describes the agricultural sciences and outlines their substance. The third section unfolds the scope and nature of Agricultural Economics, to be followed by an analysis of the elements of Economics, which is to be applied to Agriculture. In the last section is given a picture of the motivating forces underlying agricultural activities. At the end are appended summary and the broad conclusions, flowing from the main argument in the chapter.

INTRODUCTION:

Before launching into the subject matter and the analytical description of the scope and nature of agricultural economics, it is proper to preface them, with a brief introductory survey. What is the place of agriculture amongst Man's activities? What are the peculiarities of agriculture? What are its physical and natural limitations? These questions would be answered first. It is known that agriculture is a many-sided calling, and is the basis of both Commerce and Industry. The importance of agriculture as a Science and as an Art is brought out in the following and its link with Business is also established. But no attempt is made to offer an advanced analytical treatment.

What is Agriculture?

Agriculture occupies the most important place amongst Man's manifold activities. The farmer is the food-giver, the supplier of raw materials (for several industries), fuel, and dairy products. In short, humanity could not probably live without agriculture. Agriculture is marked by certain *peculiarities*: nature plays a dominant role, farming is an outdoor profession, and its operations seasonal, while the geo-physical activities have their effects felt too. The natural and physical *limitations* of agriculture very significantly circumscribe its scope: latitude, altitude, temperature, configuration, biological forces and umpteen other geographical factors limit agricultural activities, in spite of the increasing control of Man over Nature. That agriculture is a many-sided industry is evident: croppage and animal husbandry go together, while farmers' activities have extended to the processing sphere. Its diversification is becoming more and more impressive. "Agricultural production" is a generic term, covering an infinite variety of crops, and cattle, forests, and fisheries. It is easily the most homogenous industry. Still a *distinction* is drawn between Agriculture, Industry, and Commerce, by referring to them as primary, secondary and tertiary callings respectively. The *primary* industries include all the agricultural callings, and are basic, while the *secondary* ones refer to manufacturing, and processing, and the *tertiary* types, to commercial activities. Thus, in the narrow sense, agriculture may not be regarded as either industry or commerce, but in its wider aspect, it is both, for processing is now a part of farming, whose commercial aspects are becoming increasingly important. The economic *divergence* between these three may be pointed out: the primary industries are more immobile, but less flexible than the other two, *viz*. the secondary and the tertiary ones. In economic language, it is the "time lag" that is pronounced in agriculture. Still, the fact remains that agriculture is the fundamental basis of all other industries, for it is the supplier of all raw materials, and the bulk of world's trade is in agricultural commodities. This is known as "Agricultural Fundamentalism."

Agriculture as a Science and an Art:

Knowledge is divided into sciences and arts, the former relate cause and effect, while the latter are creative. Agriculture is a homogenous science, comprising plant pathology, cattle breeding, and crop cultivation, while the sciences of biology, engineering, dietetics and sanitations are increasingly serving Agriculture. The application of scientific manures, mechanised implements, and of the multiple branches of science, to tillage is growing apace. Agriculture is an *Art* in the sense that it is creative; the peasant is engaged in injecting life into the lifeless. The farmer first bcame an artist, before he turned to Science. Thus agriculture is both a science and an art. Not this alone. Agriculture is also intimately connected with Business, for Man hit upon farming as a means of obtaining food, which originally was the most important business activity. Its relation to Economics is intimate, in so far as it is the farmer's ordinary business of life. Recent advances in agriculture have brought about far-reaching changes in the occupational distribution. Farming is now having a profound influence on the economy, while economic activities, too, have been changing its face. In short, agriculture provides the basic foundation stone for international economic cooperation in fighting hunger and want.

The Inference:

Agriculture is the oldest and the widest of all human activities. Hence, it is the biggest calling, especially in the backward countries, which dominate the globe. It is distinct from industry and commerce, in that it is the primary profession, while the latter are secondary and tertiary ones, depending upon agriculture for raw materials and trading. Still, the economic divergence between these industries needs to be restressed. Again, it is established above that agriculture is both a science and an art, though the farmer started as a creative artist. More and more of science is being applied to agriculture in this age of science. Again, the intimate relations of business and economics to agriculture are brought out in the foregoing: man's search for food led him to undertake farm enterprises, this means that tilling was first conceived of as an economic and business activity, and only, later on, emerged as a scientific pursuit. To sum up, it is clearly understood that agriculture is most basic of all human activities, and the very basis of human economy.

SUBSTANCE OF AGRICULTURE:

The technique of farming need be pictured, even though crudely, for agriculture is fast becoming a very specialised industry. It is not only a fascinating subject of study, but also one which is both instructive and indispensable for the agricultural economist. The factors of production in agricultural production may be listed as soil (its mechanics, composition, and fertility), cattle (their breeding, feeding and health) and above all, Man, the most important agent of production. Agriculture is, thus a field of work for the engineer, the educationist, the scientist, the researcher and the extension worker. This subject has a vast canvas of study.

Agricultural Sciences:

Plants are the mainstay of both human and animal life. Their growth is dependant upon natural factors, which, though not under the direct control of the farmer, are to a great extent, influenced by its activities. *Soil* and *fertility* are indispensable to vegetation. The study of the soil falls into four categories: classification, mechanics, chemistry and biology. Soil surveys are conducted, and attention paid to "soil profile", *i.e.* the different layers of the soil from the surface down to the parent rock. Clay, silt and humus are important factors in soil composition. Mechanical, chemical and biological analyses are conducted for particular soils, to find out their suitability for certain crops, their chemical composition and bacteriological content, respectively. "Soil indications" give a clue to the state of soil, and a visual idea of its deficiencies: acidity is cured by liming and excess of alkalies with the addition of magnesium salts to the soil. *Humus* is now recognised as contributing to fertility: its sources are compost, sewage sludge and farmyard manure. In increasing fertility, nitrogenous manures play an important part, while the use of chemicals is growing more fashionable. Soil productivity depends upon nutrients, humus and fertilizers—by a fair combination of all these, it can be raised considerably. *Crop improvement* has long been practised by selective breeding or hybridization. Crops are classified as *cereals, grasses* and *clovers*, while from the *technical point of view*, they could be classed as *exhaustive, cleansing* and *restorative ones*. Greater reliance is now being placed on seed mixing, or what is popularly known as *mixed cropping*. The main arables are preceded by "nurse crops", while rotation (of crops) is also practised. Plant growth is an interesting phenomenon: the plant gets its nourishment from the sub-soil, the air, and the sunshine, but soil structure—surface and subterranean—plays a vital role. *Farm pests* have to be fought against by the farmer, by learning all about their growth and causation, and secondly by using insecticides in the most vulnerable periods of these pests. *Diseases* have to be countered, and means devised to protect the crops, the cattle, and above all, the men behind the plough. These diseases spread from the almost invisible *virus* (and *aphis*), the *fungus*, (*parasites* or *saprophytes*), the *yeast* or the large living beings, the *toadstool*. *Weed* control must be practised by the vigilant farmer: weeds are those plants which feed on the useful ones. Weeds are often airborne, and find their victims even in far flung places. Even though machines have now been invented to root out weeds, and/or spray them to kill, still the problem remains only partially solved. It has, therefore, to be attacked on a larger scale than the means of a single farmer's permit.

Farm Equipment:

Under this caption could be included the cattle and the mechanical appliances that are used in farming. Also, the value of correct training and education to the peasantry could hardly be overestimated. In the first place, *cattle* are indispensable to agricultural production: stock-breeding is already a scientific pursuit, while artificial insemination is now being increasingly practised. In the feeding of animals, *four* considerations are kept in view: chemical composition of the feeds, their digestibility, the physiological needs of the animal, and their digestive behaviour. Fodder has five constituents: carbohydrates, proteins, fats, minerals, and vitamins. Tables are now available, giving the composition of the different feeds, which mostly consist of *roughages* and *concentrates*, or the quantitative and the qualitative constituents. Cattle are required for power, food and manure. In the under-developed countries, greater dependence is placed on cattle, which are neglected, too. The veterinarian has an important part to play in curing and preventing cattle diseases and contagions. Ill-health in animals, and poultry, may be due to infection and mal-nutrition, or the deficiency of certain foods. The biologist, and the bacteriologist also help the farmer solve certain problems in soil fertility, plant and animal diseases, and dairying. Humus and farmyard manures, to which reference has been made above, are mostly cattle products. Sub-soil activity is carried on by the *aerobic* and the *anerobic bacteria*. To improve dairy products, ensilage (preservation of green fodder without drying) is the vogue. *Agricultural engineering* is now growing more important, with the trend towards mechanisation of agricultural operations, and the use of the tractors. Not only are the cultivation processes mechanised, but also the storage operations, by means of pneumatic conveyors and elevators. Electric current has revolutionised irrigation, cultivation, dairying, and poultry-farming. Now-a-days "rotary cultivation" is being tackled, and implements, (including machines) developed accordingly. *Education* and *research* are increasingly getting extended to the rural sphere: agricultural research is conducted in the laboratory and on the farm, while its results are being popularised through schooling at various levels, and above all, extension services have been built up to keep contact with the farmers. The *inference* appears to be that the productive technique in agriculture is now highly scientific and specialised. With greater progress, man is now able to effectively, control the "freaks of nature".

SCOPE OF AGRICULTURAL ECONOMICS:

Marshall referred to economic activity as arising out of the ordinary business of life: and agriculture is an important (economic) activity; hence, agricultural economics is a branch of the parent science of Economics. But being a specialised study, its scope and nature merit special treatment, which must precede that of Economics proper. In the first place, the causation of economic activities is underlined, it is regarded as an aggregative social form of action. This is followed by a study of the definition, critique and scope of agricultural economics. Another paragraph deals with its departments; their linkage is established in the next para. An inference is drawn to thread the various points of this section.

Economic Activities:

Economics is an aggregative science and deals with satisfying wants, producing goods and exchanging and distributing them. The role of the State, too, extends to economic activities. The *nature and scope* of these activities embraces all forms of human action. Economic decisions arise out of the problem of scarcity, while economic activity is directed to adjusting limited means (capable of alternative uses) to multiple ends or wants. The subject matter of Economics consists of relationships arising out of man's efforts to secure food, shelter, clothing and other requirements. All agricultural activity is typically economic, for there is pronounced in it, the element of choice. The farmer, naturally, takes into consideration, the social and economic aspects of his business, and is influenced by the socio-economic climate, and its variation. Self-sufficient farming communities are rare, today, and if at all found in traces, are fast disappearing. Agricultural Economics, is thus, a branch of both Economics and Agriculture. *Jouzier*, a pioneer writer, described it as the science of "agricultural household", and enumerated the economic relationships therein, as of contact, activity, value and commerce. But his definition relates to that field of activity, which stresses the organisation of the farm, but fails to cover the entire study. Broadly speaking, agricultural economics includes, production, marketing, labour, credit, and finally, agriculture's share in the national dividend. Its aim is to bring about a growth in agricultural activity in harmony with the best interest of all concerned. In short, *Agricultural Economics* discusses the economic aspects of agriculture, as practised in the application of a host of subjects *e.g.* veterinary science, rural engineering, and crop cultivation. A study of the technique of agriculture needs be supplemented with an examination of its economic aspects, for it becomes necessary for the farmer to be cognisant of the resultant of several economic forces operating in his environment. But it must not be confused with *Farm Economics* or *Farm Management* (which narrows its scope to the farm activities) or with Rural Economics which broadens out to cover the whole rural environment. Three forces do operate on the farm: the physical, the biological, and the socio-economic. Farm Economics does not analyse all the forces, while Rural Economics deals with a wider canvas, Agricultural Economics stresses the productive and allied aspects—the subject matter of this book—hence this term is being used throughout, and must not be confused with others.

Its Departments:

The subject is usually divided into five departments of study: Production, Marketing, Labour, Land Economics and Rural Sociology. The departmentalisation has been done for reasons of simplification, for Economics is studied from the dynamic, and not the static angle, as implicit in this sub-division. *Rural Sociology* covers a wide variety of topics ranging from the demographic to the social; other subjects studied are employment (and un-employment), rural society, agrarian relations and their institutional impact. *Land Economics* deals with land reclamation, land tenures, scale of farming, and the problems of holdings: This subject is intimately connected with agrarian life. *Production Economics* is distinct in its scope, in that the agricultural operations are not walled, nor even controlled, as these are in other industries. *Agricultural Marketing* assumes importance, as the marketing of farm products raises special problems: storage, transport, the "distance" between the producer and the consumer, and the price instabilities. *Agricultural Labour* reveals the problems of agrestic serfdom, wages, tenancy, and complex rural relation. The problems of labour legislation in the rural areas have a speciality of their own, in that there are paramount difficulties in the enforcement of such legislation. *Agricultural Credit* unfolds the issues latent in the supply of and the demand for credit in the agricultural sector, and incidentally, also suggests how this machinery could be improved to the advantage of the peasant. In *Agricultural Planning*, the reader is acquainted with the implications and problems of general economic planning in their bearing on agriculture, and of agricultural planning in particular: and other important aspects of state activity in agriculture.

The Linkage:

All these departments of economics are inter-related in a twofold manner; each department of study draws from and, in turn, is dependent upon the other, and *vice-versa*. *Rural Sociology* is intimate with *land economics*, and so also it is linked with production and marketing, for the obvious reason, that it is the society and the man behind the plough who are to play a vital role in all agricultural production, and other problems. Similarly, *land economics* bears upon all other subjects of agricultural economics, in that land is the very basis of production in the rural sector: the distribution of land raises complex problems of a human nature. Again, *agricultural production* does reflect upon the other departments of study, and could not be studied in isolation. Also, marketing—policies and practices—have a significant incidence on all economic activities in the agricultural sphere, which, again, have important bearing upon these practices in the countryside. Thus are intimately, inter-related all the various departments of study.

Agricultural Economics:

From the foregoing it may be inferred that the scope of *Agricultural Economics* is indeed vast. The fact is that agricultural (and rural) pursuits are neither purely commercial nor crudely economic, but arise from mixed motives. It may not be advisable to compartmentalise the study for as shown above, its various branches are all so closely-knit, and so well-integrated that it may not be easy to disentangle them; that would make the subject much more difficult, instead of simplifying it. Hence it is proposed to follow the integrated plan of study, hereunder.

ELEMENTARY ECONOMICS:

Before launching out on a study of the application of economic laws to *Agriculture*, it is proper to make a passing reference to the elementary principles of *Economics*, for the former is a branch of the parent science, and rests on the application of its fundamentals. In framing economic policies for agriculture, too, it is essential that a clear understanding of the basic issues involved in general analysis be understood and their weight appreciated. The vital limitations of the various "laws" of Economics should be recognised so that there is no blind approach to the problems and controversies, raised in this discussion. In the first instance, this section deals with the nature and scope of Economics, to be followed by a statement of the elementary laws of production and distribution: next attention will be diverted to the theories of money trade and instabilities, which will be supplemented with a study of the role of the state. But no attempt is made to land the reader in controversies, except where unavoidable.

Scope of Economics:

Economics deals with the problems of scarcity, for the Economic activities are designed to adjust limited means to multiple and unlimited ends or wants. Life is punctuated with wants, efforts and satisfactions. Economics is both a science and an art: science, because it sets forth the principles linking cause and effect, and an art since it is both creative and constructive. It could not claim to be a *positive* science, but only a *normative* one, for it lays down lines of human conduct in matters economic. It is a *light-bearing*, rather than a *fruit-bearing* science, for it throws light on various matters, but does not bear any concrete fruit. Economic studies have also been departmentalised under the sections of *Consumption*, *Production*, *Exchange*, *Distribution* and *Public Economics*. These headings are self-explanatory, and deal with the respective problems, but not in water-tight compartments, for an economic issue may have to draw upon various laws, *e.g.* in Consumption or in Distribution. Apart from these traditional departments of study—which are intimately interlinked—there is the fascinating study of economic fluctuations, an application of the principles enunciated in these sections. It is more fashionable to visualise Economics, as the analysis of group activity (*Macro-Economics*) rather than generalisations based on the behaviour of isolated individuals (*Micro-Economics*) of classical economics. Lord Keynes, who founded a new school of thought, also pointed out the falsity of the classical assumption —"other things being equal"—and laid the foundations of *Dynamic Economics*, wherein this hypothesis is shed off. In economic laws, the most basic one is that of "Diminishing Utility", which has a very wide application in all human behaviour. According to this, it is asserted that though wants in general may be insatiable, they are singly satisfied, but "marginal utility" falls with each additional dose of consumption of the same commodity or service. This law is a practical pointer to the need for diversification of the productive process, so that it meets the diverse needs of the consumer. Another important principle of wide application is that of *substitution* or *indifference*, which pervades all fields of economic activity. Maximum satisfaction is obtained by the consumer by substituting, at the margin, one unit of an article, for another unit of another commodity or service: thus is arranged his consumption pattern in such a way as to secure *equi-marginal utility*. Similarly, the producer, by effecting *equi-marginal productivity* in all the factors of production, attains *optimum production*. When exchanging, people are *indifferent* to further purchasing; at this point of indifference they stop. Under distribution, this law holds good, for the national dividend is distributed according to the law of equi-marginal pro-

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ductivity. To the agriculturist, who has to produce, much in advance of demand, this indifference technique is very useful, as providing him with an insight into the mechanism of the anticipatory market conditions in respect of his produce. *Producer's* and *consumer's surpluses* are other accepted concepts: the former relates to the difference (surplus) between the lower price paid and the higher satisfaction attained by the consumers, while the latter stresses the important role of aptitudes and conveniences, attendant upon a certain productive process. Without the application of these two concepts, it may be difficult to explain correctly, why the farmer sticks to his calling in spite of heavy odds. The *law of demand* is another landmark in economic analysis: the *demand schedule* informs about the aggregative aspect of demand, while the law links price to demand or willingness, coupled with the ability to pay. *Elasticity of Demand* probes deeper into this price demand relationship, and points to its various grades: inelastic, elastic, and highly elastic. Demand is *normal*, when it responds inversely to price, but it is regarded *abnormal*, when it is exceptional to the law, and has a direct response to price. Similarly, the laws of supply are significant: the behaviour of supply is directly related to price, it is not an inverse function (like demand) but a direct one. Elasticity of supply correlates the responsiveness of supply to price. Normal and abnormal supply are parallel concepts. *Valuation* is the core of economic analysis, for it explains the laws of price determination. Usually, the element of time is recognised in the theory of value: *short period* price is nearer to *demand price* (settled by social marginal utility) for the supply position is rather rigid, while the *normal* or the *long period price* is nearer *supply price* (settled by the marginal cost of production), for demand can be fairly accurately forecast. In the short period, however, distinction is made between the *perishables* (whose price is totally dependent upon their demand) and the *durables* (whose price could not fall below their cost of production); while in the long-period the *rare* articles are distinguished from the *reproducibles* —in the case of the former, price is derived from social marginal utility, and hence approximates to demand price, while for the latter goods, to the marginal costs of production. The role of the *prime* or the *recurring* and the *supplementary* (or the *fixed*) costs in valuation is significant, for the marginal producer must always cover at least his prime costs, while the established supplier both his costs.

Production to Distribution:

Four agents of production are enumerated: *Land*, *labour*, *capital* and *enterprise*; to these may also be added the *state* which is now increasingly participating in production. *Land* is the most important factor in all production, especially agricultural, while *capital* is getting more and more indispensable in this capitalistic system, which is enveloping all economies. *Labour*, the human factor, represents all human toil, and its supply is not so rigid as that of land. Land and labour, by themselves can initiate all production; hence they are styled as the elementary agents of production. *Enterprise*, (risk or uncertainty-bearing) is now regarded as a separate factor, for few are gifted with the ability to foresee business trends. In the case of agriculture, the farmer is himself the landlord (*e.g.* the peasant proprietor), the labourer, the capitalist, and the entrepreneur. In combining his productive factors, the law of substitution is applied, for the farmers' objective is to attain optimum production at the lowest cost; but due consideration is also given to the twin facts of indivisibility and scarcity, because the utilisation of the indivisible factors results in better production, and by economising the scarce ones are reduced the costs of production. Three laws of production are also taken into consideration: these are the laws of decreasing, constant, and increasing returns. When an investment brings greater yield, the law of increasing returns or diminishing costs operates; when the return or the cost remains same, it is the law of constant returns or costs that applies; and when the returns successively fall, the laws of diminishing returns or increasing costs prevail. The law of increasing returns or diminishing costs is the outcome of the types of economies—external and internal—and also due to the better, utilisation of the indivisible factors. The modern trend is to recognise only one law--that of variable proportions—which is based on the fact that the increasing, decreasing or constant returns (and costs) are the resultant of varying proportions in which the factors of production are combined. The best combination of these factors is known as the *optimum* one. In the theory of distribution, the principle of marginal productivity is applied, except in rent which is described as a *differential surplus*, arising out of the twin elements of scarcity and qualitative differences in natural factors; another explanation is couched in terms of *transfer earnings*: the earnings on transfer; and hence the payment made to stop transfer. Interest can be explained by the *loanable funds theory*, wages by the *discounted marginal prodcutivity theory*, and profits by the *residual claimant theory*: all these will be exhaustively dealt with, in a section, DISTRIBUTIVE ASPECTS, in CHAPTER VII, below.

Monetization Aspects:

Money credit and commerce play an important role in life. Without going into the various theories of money, it may be stated that complex economic issues have been getting more complicated with increasing monetisation of agrarian life. The *quantity theory* of money seems most applicable to the agricultural sector: the greater the quantity of money the higher the price level. While the various forms of visible gold standard have now almost faded away since the inter-war period, the gold parity standard (with a nominal parity of the standard unit of currency with gold, on an international basis to facilitate the exchange conversion) is in vogue in most countries. To a great extent this has insulated the weak agrarian economies against foreign competition. In the field of credit and banking, modernised institutions play only an insignificant role, especially in the under-developed economies. Of the various types of banks, the land banks, agricultural banks, and small savings banks may interest the reader. Suffice it to observe here that the banking structure in the agricultural sector is rather weak, and needs reinvigorating. *Inflation* is a well-known phenomenon, characterised by rising prices, while *disinflation* is restored to, to correct the price level back to the original level; this policy, if continued further, results in *deflation*. *Hyper-inflation* is especially dangerous, as it occurs when inflation feeds on itself, and prices go on rising unchecked. Cooperativisation is becoming increasingly popular, both in the fields of credit and banking, especially in the agricultural sector. Its one objective is to eliminate the middleman, and strengthen the weak by concerted effort. Central banks are now playing a more impressive role in agrarian structures, for they have resources enough to dominate the money market and also, by their statutory powers, to canalise the banking structure of the country towards helping agriculture. To explain *international trade*, various theories have been advanced: comparative costs explanation, opportunity costs theory, demand and supply principle, and exchange ratios phenomenon. Of these, the most recent one is that advanced by Professor Ohlin, "exchange ratios" theory, by which inter-regional and international trade is carried on, both in quantum and direction by the exchange ratios parity between the trading nations. Still, the law of comparative costs occupies a venerable place in economic analysis but gives merely the long-term trend, for it is well-nigh difficult to work out thousands of comparative costs. The supply and demand explanation credited to Dr. Marshall, provides a clue to the terms of trade (between the trading nations) which it attributes to the comparative and cross-elasticities of demand for and supply of the products of the nation. Haberler's opportunity costs theory, which assigns to these (opportunity cost) ratios the place of prominence in explaining international trade, is apparently too "real" and "deep" to merit practical consideration.

Problems and Policies:

Economic analysis is not without its seamy side. Foremost among the various headaches for the policy maker is the problem of *economic instabilities;* trade cycles and fluctuations have been puzzling phenomena. These are characterised by synchronism and periodicity: they attack all the various economic sectors together, and have a periodical recurrence. Observation has it that they visit agriculture first and leave it last, that is why the farmer is interested in their causes and remedies. Though fuller treatment of these occurrences is to be attempted later, it may be pertinent to observe here that various economic systems have been advocated, as remedial measures for depressions and booms of commerce. The capitalistic structure or *capitalism* is condemned for being inherently responsible for economic fluctuations: *socialism* aims at nationalising all the productive apparatus, in order to eliminate profiteering, while *communism* seeks to bring about complete regimentation of the economy. In the inter-war period *fascism* and *national socialism* were practised in Italy and Germany, but were too reactionary to survive in democracies. Democratic welfare states advocate the adoption of a system of *mixed economy*—the best points in all the various "isms"—to suit their needs, instead of any particular dogma. State activities extend, primarily, to the fields of finance. *Public Finance* is quite an important activity of the State, which may accept the *Redistributive Theory* (robbing Peter to pay Paul), or the doctrine of Maximum Social Advantage, with a view to achieving maximum welfare. The problems of full employment have also come to the fore in the national economic policies. The Keynesian group is wedded to the realisation of full employment by the aid of fiscal policy, and public finance. Greater reliance is now placed on public expenditure as a means of injecting purchasing power into the economy to fight deflation, and depression. In the field of taxation, distinction needs be made between the impact (the initial burden) and the incidence (final burden) of a tax, and attention needs be focussed to the problems of shifting. Again, policies designed to bring about fuller employment, could be launched only after a clear understanding of the causes of unemployment, or at least non-employment and under-employment. The corresponding problems in the agricultural sector are rather serious, especially in the under-developed economies. Subsidies, fiscal aid, financial assistance, protection and research and advice, as also classification and dissemination of information and intelligence are state functions.

Economic Analysis:

From the above rapid review of elementary economics, it may be correct to infer that while the scope of Economics is vast indeed, that of agricultural economics is rather narrow, being confined to selective application of the principles of this parent science. The above outline could not claim to be anything nearing an exhaustive survey, but an attempt has been made in the foregoing to enumerate the main laws and theories of economics, and to bring out their application in the sector of agriculture. Without being dogmatic, it may be observed that the agro-economic structure being based on thousands of individual farming units, the classical system applies more readily to this rather than the modernised macro-economic and dynamic apparatus of thought.

SOCIO-ECONOMIC MOTIVATION IN AGRICULTURE:

Motivation of human activity has been traced by psychologists to various mixed causes: its mainsprings may be social, religious, political, personal, or economic. These have been classed as *motives* (responsible for initiating an economic activity), *incentives* (responsible for impelling a certain individual to a certain action), *attractives* (what tempt a person to a certain activity) and *ideals* (abstract notions, worthy of emulation). Right selection of these is of use to the expert, the legislator, and the peasant. In the following paragraphs, all these are discussed in details, and their utility brought out, for a correct understanding of their role is valuable.

Agriculturists' Motives:

Rational and *irrational* motives dominate economic activity, but in this analysis, the former are important for there are still conjectures about the latter. Foremost among these motives is that of the *satisfaction of wants*. Alternatively described as the *money motive*, this takes into account the personal likes and dislikes of people. Next in importance ranks the motive of *family affection* which according to Dr. Marshall, is one of the strongest factors in all economic activity. This is so in the farming communities, where the family still stands preserved as an integrated unit. Third in importance is the motive of *serving the community*, this is only an extended form of that of family affection, in that the peasant treats the community as his enlarged family, service of the neighbours and the community give him a similar sense of achievement and satisfaction. Fourth is the motive of *acquisition of landed property*: without land no agricultural production is possible. In the densely populated regions, land hunger is very strong, and a peasant wants more and more of land, if only to ensure a good livelihood to himself and his dependants and survivors. In the fifth place, *community spirit* also fires the farmer's imagination: behind it lies his desire for a decent living and proper environments in the community. The peasants are more devoted to their community than others; hence this spirit motivates them to action more intensely than it does the others. Usually, the peasant is born and brought up in the traditions of joint and collective living, which are decaying and dying out in the hearts of most townsmen. Sixth is *legal compulsion* which compels peasants, who are often very much law-abiding citizens, to a certain course of action, and therefore may be considered as a strong motivating force in agriculture. It may be repeated that while motives are visible even to a casual observer, the incentives are deep undercurrents of human action.

Economic Incentives:

In the study of agricultural motivation, economic forces which lie hidden, but are potent enough to impel cultivators to a certain activity, are quite significant. First among these is the *incentive to produce*, which enables the farmer to secure a higher share out of the national dividend. In family and subsistence farming, especially, is this incentive very pronounced, but even in other types of farming it plays a more vital role than is imagined, for the peasantry do become conscious enough to work for a better income. The *income incentive* is the next one, but is closely allied to this one: an enhancement of income is an accepted end in all economic activities, and farming could not be regarded as an exception: it is visible in his search for more lucrative markets. This particular incentive becomes stronger with enlightenment of the peasantry, who under progressive conditions, demand a *higher standard of living*, which may be named as the next important incentive in agriculture. Better living is a very potent force underlying farming operations, from the individual and the national points of view. In a democracy, maximum social welfare is the target of state policy: this means a high standard of living for all. Fourth ranks the incentive of achieving *economic stability*: in their search for stability, the cultivators strive to be efficient in their jobs. Agricultural improvement aims at eliminating or at least minimising the various uncertainties of nature. *Economic self-sufficiency* could be given the next place in the list of incentives: ever since the thirties (when the world was ravaged by an unprecedented depression), there has been waged the "battle for wheat", which has now assumed the form of as much self-sufficiency in respect of raw material and the agricultural produce, as it is possible to attain. The farmer could not remain immune to these national campaigns. This incentive is effective from the narrowly individualistic viewpoint (self-sufficient farming) and from the broader national angle.

Sixth in the list is the *profit incentive,* which is very patent under capitalism and individualism, which has gripped even the backward economies. But if this incentive is wrongly utilised, it may take the form of economic and social exploitation, and subsequently end in social antagonism, and even upheaval in the society.

Attractives and Agriculture:

These induce the farmer to put in more and more work, and are so to say, designed or created incentives. These are of two types: *immediate* and *remote,* or those bearing fruit in the short-run and those effective only in the long-run. Most important among the *attractives* is that of *rent-free land,* which tempts all farming communities everywhere; in fact, this attractive is utilised to colonise uncultivated lands, or to speed up the process of reclamation. Very intimately connected with it is the attractive of providing *reclamation facilities*: machinery for reclaiming land may be loaned to the needy or hired to them at nominal rates, and the reclaimed land given to the peasants free or on very low long-term leases. Third in importance is the bait of *tax exemptions,* held out to farmers, who may thus be enticed to follow a desired course of action, and adopt a certain type of cultivation: food production could be considerably increased by remitting a part of the land revenue on the food-growing lands. *Community progress* stands midway between the immediate and the remote attractives: the peasant may be attracted to the idea of local development in order to improve his own standard of living—this seems to be the force behind the *Shramdan* movements, launched by Acharya Vinobha Bhave. Fifth is the attractive of *price stabilisation;* this may have both immediate and ultimate repercussions, for all farmers want to be assured of a stable income, which could only be possible by stable prices. Price policies, if wisely chalked out and rightly enforced, would go a long way to improve agriculture; but more of this in the discussion on pricing, in CHAPTER VIII. Intimate to these is the *marketing policy,* (which may be regarded as another distinct attractive for the agriculturist): the marketing problems do haunt him, and if he is assisted in solving them, he may react very favourably to this attractive, for he would be happy if he got good returns. This discussion makes it clear that attractives if rightly utilised, could serve as a very potent factor in agricultural development. While the provision of motives, and incentives may be difficult, externally, (for they have to emanate from the mind of the peasant) select attractives could be held out to the agriculturist with some advantage. Hence, the study would be useful to the planner and to the politician.

Ideals of Farmers:

More important than attractives, incentives and motives are ideals, for they very inestimably influence the illiterate peasant, who, out of his conservatism, is more devoted to the ideals of life and often spurns its material ends of living. *Ideals*, or non-economic motives, persist in agriculture as nowhere else, for the simple reason that peasants are far more moralistically inclined than others. Foremost among these is the ideal of *patriotism*, which grips the peasants as nothing else: it is they who are ready to lay down their lives in the event of national emergency, and form the core of the fighting forces. Second in importance are the twin ideals of *religion* and *duty*, which enjoin him to undertake his calling in a spirit of detachment, and out of sheer duty to serve his fellowmen. True, that religion does breed a sense of rotten fatalism in them, and damp their initiative, but what needs to be impressed upon these simple folks is the right side of religion, which may also spur them to further action. In the backward regions, especially, this factor could impel them to greater economic effort. Third ranks the force of *independence* among the peasantry: they follow this pursuit, and stick to it through thick and thin, simply because it ensures them an independent livelihood, for they are freedom loving people. The next important ideals are *recognition* and *leadership*, which though common human weaknesses, are powerful ideals for the rural people, and especially for the man behind the plough: the farmer is a hero-worshipper and tries to emulate leaders. *Pride in one's work* is another ideal, that fires the imagination of the peasant; in fact, without this ideal, he would not be able to dare the hazards of Nature, which haunt agriculture at very step. *Ease of farming* is something idealistic to agriculture alone, for the farmer's son, without any prolonged period of apprenticeship, takes to his parental pursuit, as if it came natural to him. Agricultural operations are *easy*, for they are neither dull nor monotonous. Further, *habit*, (another ideal) makes the job facile, for it is a substitute for conscious effort. No doubt, farming by habit lags behind the modern technical tillage, but it is responsible for farmers sticking on to their profession, against heavy odds. *Joy and leisure*, the last ideal, worth enumerating is also useful in that these do not permit his life to become dull and fatiguing. The routine of his work leaves him sufficient leisure, which, he, out of his ignorance, may not be able to utilise for his well-being. Men take to agriculture, for this avocation, as none else, extends to them opportunities for a leisurely and joyous life. This factor accounts for the present "country movements", in the West.

Problem of Motivation:

The above discussion of the problems of motivation in the realm of agriculture leads one to infer that Man does not live by economics alone, for mixed and varied are the mainsprings of human action. Economic motives dominate the peasant's life. Farming is a mode of life rather than a profession, calculatingly undertaken, and pursued. The planners and the policy-makers must take cognizance of the various aspects of the problems of economic motivation in agrarian societies, for if correctly applied, and judiciously selected, motives, incentives, attractives and ideals, may infuse the peasant with the right type of enthusiasm and may canalise his activities into the desired channels for economic development.

SUMMARY AND CONCLUSIONS:

To sum up, it may be stated that agriculture is the biggest profession of Man, in the present industrial age. It is one of the primary industries, on which rest the secondary and the tertiary ones. Agriculture is both a science and an art—the fact is that the farmer first became an artist and only later on a scientist. But more and more of the scientific knowledge and modern technique is being applied to agriculture. Agriculture covers a large canvas, and is more or less dependant upon the freaks of Nature. Soil and fertility are important factors, while the role of humus in fertility is being recognised. Crop improvement is the aim of the farmer: mixed cropping is practised to this end. On the preventive side, farm pests, plant diseases, and weeds are being fought out. In farm equipment, cattle are indispensable to the peasant: the issues of their feed, health and diseases are important. Agricultural engineering is fast developing into a specialised branch of knowledge, and electricity is revolutionising agriculture. Education is being disseminated to the farmers with a view to pulling them out of ignorance and superstition, and letting them apply the results of the researches. The next section devotes itself to an examination of the scope and nature of agricultural economics, which deals with a special type of economic activities, seeking to adjust limited means to unlimited ends or wants. Agricultural economics discusses the economic aspects of agriculture, and must not be confused with farm or rural or agrarian economics, which are different branches of study. Its departments are: rural sociology, land economics, production, marketing, labour, credit and planning; the inter-relation between all these departments is intimate. This discussion leads to a study of the elementary principles of economics, so as to appreciate their application to the subject under study. Economics is sub-divided into Consumption, Production, Exchange, Distribution, and Public Economics, but again it was stressed that the fashion is to discuss its principles from the macro-economic and dynamic angles, instead of the classical traditional ones. Its important concepts, (*e.g.* diminishing utility, substitution, elasticities, surpluses, valuation, price determination, laws of production, and of distribution, money and trade, economic instabilities, public finance, and the state policy) are explained above, but in brief. The last section deals with the problems of socio-economic motivation in agriculture: a distinction is made between motives, incentives, attractives, and ideals. It is pointed out that these should be correctly utilised, and for the benefit of the agricultural society: the planner, the policy-maker, the administrator, the legislator, the researcher, and the extension worker must recognise these. The following *conclusions*, emerge from this rudimentary analysis of the basic considerations. Firstly without agricultural welfare, a large sector of the world's economy would remain in poverty, want and hunger. Secondly, the problem of motivation has to be attacked discriminately: if dealt with wisely, it will culminate in correct action on the part of the farmers, and thus bring agricultural development. Thirdly, it is clear that in the various stimulii to action, it is the ideals that play a large and significant part in agriculture, next in importance rank attractives, and then come motives and last, the incentives. Fourthly, the laws and principles of economics have to be wisely adopted for application to the sphere of agriculture: in fact, most of the modern economic theory developed in the West, where agriculture occupies a relatively unimportant place in economic affairs. Fifthly, and lastly, it may be pointed out that there is little use in departmentalising the subject of economics or of agricultural economics, for the present trends is towards comprehending the analysis as a whole, and not tackling the problems piece-meal.

Economic Survey of Agriculture:

Having studied the introductory and basic concepts about the relationships as they obtain between agriculture and economics, it is proper to follow it up by making an effort to picture the agricultural economy in the present-day world, the role of farming in the modern age, and various forms of rural enterprises, and agricultural operations and systems, before attempting an analysis of the various issues in the realm of agricultural economics. In the next chapter, therefore, a descriptive survey of agriculture is attempted.

* * *

SELECT EXERCISES AND QUESTIONS:

1. Bring out the importance of Agriculture in the modern world.
2. Trace the influence of Science on farming techniques? What are its social implications?
3. Distinguish between Primary, Secondary and Tertiary industries. To which category does agriculture belong and why?
4. Establish the relationship between Agriculture and Economics.
5. What is the nature of Agricultural Economics? How does the scope of this subject differ from that of Economics and of Agriculture?
6. Into what departments is the study of Agricultural Economics subdivided? Give the inter-relationship between these departments.
7. Is it necessary to compartmentalise the study of Agricultural Economics? Examine, in this context, the case for an integrated approach.
8. Define Economics. What is the nature, scope and purpose of Economic Activity? How does it differ from other forms of social activity?
9. Review, in brief, the problem of socio-economic motivation in Agriculture. What are its distinctive traits?
10. Distinguish between motives, incentives, attractive and ideals. Assess their relative importance in agricultural policy.

CHAPTER II

THE PICTURE

Agriculture in the Modern World—Food and Raw Materials Aspect: Impact of Progress and Prosperity: The F.A.O.: Wars and Agriculture: Rural Movements: Modern Agriculture. National Agriculture—Nations and the World: National Policies: Balanced Economy: National Agriculture: Society and the Individual: Agriculture in National Economy. Agrarian Enterprises —General Considerations: Types of Enterprises: Indirect Enterprises: Spare-time Enterprises: The Critique. Operations of Farming—The Problem: Operations, Prices and Costs: Agricultural Operations: Routine or Sequence Operations: Miscellaneous Categories: Cultivation and Production: The Economic Angles: Livestock and Other Operations: Farmers and Operations. Agricultural Systems—"Systems" and "Operations": Interfarm Organisation: Group Management: Cooperativised Farms: Unit Cultivation: Aspects of Agriculture. Summary and Conclusions. Select Exercises and Questions.

THERE has been a revival of Agriculture since the inter-war period; agriculture has gained greater importance now than ever before. This chapter, therefore, pictures agriculture, in the modern world, and proceeds to delineate its role in the national economy. The agrarian enterprises, their kinds and types, and their importance, are discussed in the next section, which is followed by a descriptive survey of farming operations and agricultural systems. The reader is thus initiated into an analytical approach to the subject, by acquainting him with the nature and substance of agriculture, in all its various phases in the present-day world. A reference to the F.A.O. is also made in passing for the part played by this world organisation, could not be overlooked, even by casual reader. While avoiding unnecessary details, the review of agriculture, as attempted in this chapter, is made as comprehensive, as possible at this stage.

AGRICULTURE IN THE MODERN WORLD:

Agricultural revival has been receiving special impetus, since the inter-war period; the establishment of the F.A.O. has accorded this fact special recognition in the international sphere. In the first place, the food and the raw materials aspect of agriculture has given it a prominence, which it did not have so far. Although the industrial nations depended on the agricultural countries for the supplies, yet they treated them as mere colonies. Secondly, the era of prosperity, ushered in by the 20th century, has had a special impact on these nations, which have decided not to remain content with inferior status, so far given to them. The economic (and social) effects of the wars—which seems to have become recurrent since the inter-war period—on agriculture are studied in this section. The various threads of the argument are picked up in the last paragraph, "inference."

Food and Raw Materials Aspect:

For centuries, Man's main occupation was the hunt for food and shelter, later on he began his search for good clothing; therefor it is easy to prove in this context that farmers came first, for farming provided all these. Other raw materials are also supplied by agriculture, even in the modern world. That is why certain countries practise agricultural protection, so that their factories can be kept fed with raw materials. Most of the trade and commerce in the modern world (including internal and entrepot trade) is in agricultural produce. Hence it is safe to conclude that farm prosperity is the basis of general well-being, though agriculture may not be the only determinant of economic health. Industrial prosperity has its roots in high purchasing power; industrial goods are bought by the farmers, who if rich, could afford to buy more. Also, fuller employment in the agricultural sector, would mean more money which can be spent upon the purchase of manufactured goods. The food and the raw materials aspect of agriculture is the most basic of all, for secondary and tertiary pursuits. While the farmer is singly dependant upon these callings, the latter are doubly dependant upon him: for the supply of raw materials, and for their own prosperity, too.

Impact of Progress and Prosperity:

Agriculture cannot remain divorced from the march of time; agricultural activities have become more modernised, dynamic and scientific now. Under economic progress (in agriculture), the number of farmers generally declines: where industry and commerce attain maturity, agriculture is not so much hard pressed for employment. With mechanisation of farming activities, there is not room for very many labourers, or operators on a farm, which also grows bigger. The very complexion of this avocation changes with the employment of modern machines to it: organisation and structural changes take place. Similarly, the commercialisation of agriculture has far-reaching consequences: farmers make economic calculations before undertaking their enterprises. While under subsistence, and self-sufficient farming, greater emphasis need not be placed on the production of "commercial" and "cash" crops; under the impact of commercialisation, this character of agricultural operations, fades away, giving place to more extended production, and incidentally makes the farmers better off. The impact of progress and prosperity on agricultural production is responsible for initiating the twin cycles of mechanisation and commercialisation, which, in turn, bring greater prosperity.

The Food and Agricultural Organisation:

The international trends in the realm of agriculture give us an insight into the working of the F.A.O., which is entrusted with the rehabilitation, reconstruction and revitalisation of agriculture in the modern world. It seeks to ensure the welfare of farmers, fishermen and foresters, which comprise about two-thirds of the world population. The problem of improving their standard of living is coincidental with that of increasing food production and increasing Mans' nutritional levels. The leaders of the world, acting in complete unanimity, set up this organisation in October, 1945, as the first of the specialised agencies of the United Nations Organisation. Its technical divisions cover Agriculture, Fisheries, Nutrition, Forestry, Rural Welfare, Distribution, Production and Statistics, while its advisory services include Soil Erosion, Irrigation, Engineering, Insect Infestation, Artificial Insemination, Farm Machinery, Fertilisers and Manures. Temporary Headquarters are located at Rome, but its regional officers are stationed at Rome, Cairo, and Bangkok. An information specialist, posted in New Delhi, serves the Far East and Asia. This organisation is run by a Conference, which periodically reviews the world situation in regard to Food, Forestry, Agriculture, Livestock, and Rural Welfare; it also receives reports and frames policies in the case of both the surplus and the shortage economies, renders advice, and takes action accordingly. The achievements of the F.A.O. may be enumerated: data on Food and Agriculture is published in its Statistical Yearbook, and other compilations; experts are loaned to member-countries for special purposes and for giving advice; special meetings and regional conferences are held; it may also set up experimentation stations in certain important regions; while technical assistance may be given to the backward areas. Its activities are spread over a large canvas, and it has made a useful contribution to the world's agricultural economy. Disease-resistant varieties of seeds have been evolved, and hybridization undertaken in certain other varieties. Working parties, and study groups have been sent to various countries for undertaking special surveys. F.A.O.'s contribution has been quite significant: it is bringing the farmers of the world into closer contact—this may be potent enough to impress upon them the need for international amity, interdependance and cooperation. Food being the most basic of all necessaries of life, mutual dependance of nations in this sphere would assure the elimination of future warfare, or at least reduce their recurrence.

Wars and Agriculture:

Agriculture is so essential to the "ordinary business of life" that is very important for the sucessful operation of hostilities, for a nation can fight as long as its food resources last. In periods of warfare, there is an increased demand for food and other agricultural products, for at no cost should national morale be permitted to shatter. A similar situation may be said to persist in the matter of other agricultural raw materials: *e.g.* jute, cotton, wheat, timber and rubber are examples. True that synthetic products, have to some extent, replaced the nature-grown produce; but synthetisation has its limits, and is not a cheap or a very familiar process: in fact, raw materials are indispensable even for the manufacture of synthetics. Even before the wars start, stock-piling of the necessary produce is undertaken: this is especially so in the case of agricultural raw materials, for their supply is proverbially rigid and inelastic. Hence the scramble for agricultural raw materials on the eve of hostilities. Looked at from this angle, agriculture proves to be the foundation-stone of national defence and the war strategy. During the period of warfare, the allies pool their resources, (especially food), so that shortages in one region may not adversely affect the total war-effort, for modern wars are total. After the wars are over, nations start implementing schemes of demobilisation and rehabilitation; for this purpose they pool their resources afresh so that the switch-over to Peace may be effected smoothly. Similary, for planning, too, agricultural reconstruction is of supreme importance. To remedy destruction caused by war and scorched-earth policy, agricultural revival and revitalisation are urgently called for. Recently, the events in the post-war period have confirmed this theorisation.

Rural Movements:

Recently, several rural movements have spread in the modern world. These movements are characterised by the exodus of townsmen to the countryside, in search of employment, or after retirement. Town life has become every competitive, with the result that to escape from its humdrum, and pressures, people prefer to settle on a small plot of land. This has raised problem of *land hunger*, which is growing intenser in those regions, where the pressure of population in high. As a result, the attention of the legislator and the planner is now turned to countryside. Again, in the rural areas, land carries with it a certain amount of prestige. Due to high urban land prices, industries are also shifting to the rural areas—this trend is especially noticeable with growing electrification of the villages. Nascent industries are being increasingly

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located in the countryside. The result is that the farmers, villagers, and countrymen have grown very much wideawake and socially and politically conscious, as never before, and no longer fall easy prey to political agitators, and other self-seekers as before. But being divorced from the latest in education and technique, and also having few outside contacts, they tend to keep aloof from what does not carry conviction with them. Isolation from other types of work, keeps them mentally inert, and tied down to their age-old profession of farming, which is a way of life with them: that is why farmers remain farmers always. Progressive states have initiated "Extension Movements" for the uplift of the rural regions. Originating from the U.S.A., those movements have fast enveloped the countryside everywhere, and have become quite significant in the under-developed regions. Experts, in different fields of agricultural sciences, are sent out to the villages to meet farmers and help them improve their practices, and solve their problems, and above all, to inform them about the latest in science and technique, which they can adopt with ease, and without much extra cost. Thus is the village life being brought into its proper perspective, *vis-a-vis* the modern society, and being raised upto the same level of living, as prevails in the urban areas, by this planned and systematic approach to agricultural problems. In short, the recent rural movements, seek to modernise rural life, as far as practically possible

Modern Agriculture:

Though the movement towards industrialisation is rapid in almost all the backward economies, yet the place that agriculture occupies in the world's economic structure remains important. Industrial economies are reviving their agriculture, while the agrarian regions are revitalising it. The F.A.O. is seeking to put agriculture on sound footing: its working in this direction was examined. Analysing the impact of prosperity and progress on agriculture, it was discovered that the pressure of population on land has diminished, and there are fewer farm hands than before. Wars have also played their part in imparting unprecedented significance to agriculture as the supplier of raw materials and food. Rural movements reveal a very high degree of peasant consciousness; modern economy is getting very closely knit and the march towards one world is rapid indeed. The conculsion is irresistible, that agriculture is re-discovering its honoured place among the manifold economic activities in the modern world.

NATIONAL AGRICULTURE:

A description of agriculture in the national arena is now to be attempted. National economic policy is usually directed towards acheiving balance and progress. Below is also stressed the importance of agriculture for social and economic progress, for defence and strategy, and for employment and fiscal policy. References obtain to cooperativisation and collectivisation, and the section is rounded off with a word on the role of the individual in the society, from the agricultural point of view, and in its economic context.

Nations and the World:

Even in the modern world, where the international agencies are effectively operative, the nation is still a distinct unit: one world is not yet. The fact remains that in the event of a conflict between the national and the international interests, the national interests supervene, and the international ones are relegated to the background. National economies may be classed as backward and advanced, roughly speaking; most backward regions are dependant upon agriculture, while the advanced ones are industrialised. In the primitive economies, agriculture, in the accepted sense of the word, does not exist. But the backward regions practise farming, though of a subsistence type. The under-developed countries (e.g. the South-East Asia and the Middle East) make conscious efforts at cultivation and improving it, too; still agriculture is pursued as a mode of living rather than as a profession, and the farmer lives in his shell, refusing to come out, except under the temptation of strong attractives. In the transitional economies, (India is one) the economic base is still agrarian, though the people are rapidly advancing towards acheiving balance, by promoting industrial and commercial activities. It needs to be stressed again that no country could afford to be completely self-sufficient in the agricultural sphere, for this is physically impossible, agriculture being a function of its own environments. National agriculture is sure to strengthen international bonds, and pave the way for peace, if developed along proper lines. For instance with the extension of commercial relations, better standards of food consumption are ensured, for better distribution of food between the surplus and shortage countries is promised by the F.A.O. In fact, international cooperation does emanate from the sphere of food and of raw materials, both of which are agricultural commodities. Advances in science are also the result of international cooperation; these are rapidly changing the very face of agriculture, for agricultural progress is mostly due to the application of the latest in science and technique. Technical progress in the field of agriculture is truly international, for knowledge must be pooled and constantly shared before its advantages could be practically reaped. Agricultural prosperity lies in this practice, both at the national and the international levels. Agriculture is now becoming highly scientific, due to the pursuit of such policies by various nations.

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National Policies:

National priorities, in several economic fields, influence their policies. Foremost among these is the target of national economic self-sufficiency, with special emphasis on food for all. Agricultural planning, and for that reason, all planning, proceeds on an adjustment in the provision of food. This is a distant objective of policy, but easily the most important one. Next ranks agricultural progress, which as pointed out above, is at the root of all progress, and general prosperity. Diversification and growth are other targets of national economic policy, but these could hardly be achieved without agricultural planning and national economic self-sufficiency (as far as possible); ambitions plans of national uplift could seldom succeed without growth and progress in the agricultural sphere. This is especially true of the under developed regions; now even the advanced and mature economies are realising the truth of this statement. March towards progress and national economic self-sufficiency could only proceed on the basis of a progressive utilisation of all the agricultural resources.

Balanced Economy:

At best, self-sufficiency is only a means to an end. Usually the goal is balance in economy; hence the term "self-sufficiency" needs be understood in its wider interpretations. First, there is economic balance which is the aim in all planning, and is realised through it. This is why industrial economies are reviving their agricultural systems, while the transitional ones are making all efforts to revitalise their farming. World experience in planning has awakened planners to the need for this balance in planning, if it has to have enduring results; this holds true of all types of economies. Second, there are the considerations of pursuing such policies, as may bring greater employment; from this point of view it is advisable to supplement the national industries so as to widen the scope of employment. Agriculture is therefore, remodelled and reconstructed so as to provide wider employment to the nationals. Third, there is the diversification aspect of acheiving balance in the economy; "spreading out" of the economic activity includes more balanced location and also variegated effort. But this is possible only if there is better availability of the raw materials. To the extent this is so, the diversification of economy is possible only with a remodelling of agriculture: in the advanced economies, agriculture needs be reshaped (and revived) to avoid concentration and over-dependance on industrial and commercial pursuits, while in the under-developed regions the balance is to be brought about by recasting the agrarian system, and lessening the pressure of population on the primary callings. Now-a-days,

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expert opinion tends to regard the twin sectors of agriculture and industry (and also commerce) as complementary: for the realisation of the above objectives, related to balancing the economy, coordination is considered essential. With the growing trend towards decentralisation, delocalisation and dispersal of industry, changes have taken place as are of significance to agriculture: the ruralisation of industry is not merely a process of transplantation, but the fitting in of industry in the rural framework. As a result of the impact of industrialisation on the rural regions, agriculture has improved, both in its tone and status, as also remunerativeness. Next are the twin considerations of competition and control, which though appearing to be conflicting trends are supreme in all economies. With the growth of capitalistic structure, custom has given way to competition, which in turn is being increasingly brought under state control. In the evolution of economic policy-making, the curbing of competition found its place of prestige, especially because, if it was permitted to flourish, it would give rise to giant combinations. With the growing commercialisation of agriculture, a fair amount of competition has crept into it. Welfare states launch upon plans of agricultural stabilisation, and initiate schemes of crop planning, and control of cultivation. The inevitable consequence of all cut-throat competion is the imposition of controls, in the interests of the farmers themselves. Another way to counter competition, is through cooperation, which aims at weeding out the middleman and ensuring the benefit of cultivation to the tiller. Similarly, collectivism also acheives the same end, though by means of regimentation, which may suit only a certain typical environment. But the best policy would be that which aims at eliminating competition, lessening the severity of controls, and the regimentation of activity, especially in Agriculture.

National Agriculture:

Distinct stands the system of national agriculture from the international and the individual types. It is well known that the individual interests are subordinated to national needs, while international bodies also respect national aspirations, and seldom interfere in this sphere. To the farmer, the international aspects of the problems, may appear to be too distant to be real, while the national emergencies may rouse him to zealous activity. True, that in the primitive economies, the national outlook is yet to be developed, while the underdeveloped and backward regions, find it necessary to be considerate to the local aspirations, still in transitional and advanced types it is the innately national outlook that is promoted. It may, however, be said, that all countries are fast revitalising and rejuvenating their *national* economies, and it is the *national* interests that dominate their policies. In the very first instance, high priority attaches to *defence*, which remains an active force in all policy-making. For reasons, of strategy, and national defence the importance of agriculture could not be over-emphasized. From the commercial viewpoint, trade and tariffs, play an important role in national priorities. No doubt, agricultural tariffs are yet in their infancy, but now serious thought is being given to these and certain countries are alive to the need for improving them. But in the trade policies (and also in tariff bargaining) agricultural commodities have, often a significant place in national policies and practices. The administrator, planner and the economist are concerned with agriculture, as it helps raise the standards of living, by adding considerably to the total output, which is taken into account for planning purposes. In agrarian economies, especially, agriculture is the core of the planning movement, while in the advanced regions, it receives close attention, so that total output is stepped up. In planning particularly, foreign dependence upon essential raw materials (*e.g.* food and industrial crops) is minimised; hence national agriculture is activised into raising its output: this holds good of all economies.

Society and the Individual:

A nation is made up of several farming communities which are regarded as compact units, at least in those regions where the spirit of individualism is strong. National policies, when framed by wise statesmen, take into account local needs. With a stress on local self-government and decentralisation, local communities enjoy a greater autonomy than even before. But conflicts can arise as between the local and the national interests, and narrow ends have to be sacrificed at the altar of the nation. In agriculture, the conflicts are not very pronounced, in that the peasant is easily swept away by sentiments, patriotic and national, and is even ready to lay his life for the country's cause; in fact, he remains divorced from the humdrum of politics and therefore, submits to national policies. The individual actions (in farming) are especially important as far as the total (agricultural) output is concerned; this is the sum total of the produce of all the farmers, in an economy. It may even be said that the total output (agricultural and other) is influenced by agriculture in the sense that the industrialist is also fed by the agriculturist who supplies the raw materials. Expecting normal behaviour from the peasantry, it may be possible to foresee and pre-calculate the pattern of the output, its quality and quantity. But it should be borne in mind that maximum productivity is, by itself, of no import, unless it is well distributed. Several theories persist about the ideal method of distribution; that will await till CHAPTER VII, THE SHARING

OF PRODUCE. It may, however, be pointed out that agriculture is basically a family industry, and only recently has been put on a commercial plane; still agricultural supply remains static and is often unresponsive to prices. This does not imply that the place of the farmer is insignificant; on the other hand his is a place of pride and prominence in the national economy, for he is an effective instrument in the hands of the administrators and the planners: experience of totalitarian regimes amply proves the truth of this contention, for even there frequent peasant rallies have to be arranged in order to ensure their participation in national progress, in general, and in agricultural improvement plans in particular.

Agriculture in the National Economy:

From the above discussion, it would be evident that agriculture occupies a creditable place in the national economy. It is linked internationally in respect of sharing knowledge. A stable system of national agriculture appears to be an essential prerequisite of durable peace. Priorities in national planning are, generally, economic self-sufficiency (especially food), diversification of economic effort, coordination of agriculture with other sectors, and the elimination of competition by the establishment of cooperatives. Agricultural policies may be quite effective in threading the whole fabric of national life, in promoting the cause of peace, and the interests of strategy and defence, trade and tariffs, and above all, planning and coordination. Conflicts as between the individual and the national interests may arise, but as pointed out above they may not be so pronounced in the sphere of agriculture, for the peasant is swayed by the patriotic interests, and is aloof from the humdrum of political controversies.

AGRARIAN ENTERPRISES:

The reader is in a position to appreciate the significance of agrarian enterprises. Needless to repeat that agriculture is a mode of living, not a pursuit, followed out of economic or commercial considerations. Calculations, other than economic, influence its nature and scope. This section, will, therefore, take into account the general considerations (including geographical, social and human points of view), give a description of the types of these enterprises, and a detailed outline of the indirect, direct and spare-time ventures in agriculture. Agricultural enterprises are usually divided into three classes: direct, indirect and spare-time. The discussion is purely descriptive, though some conclusions of an analytical interest will be drawn, and may be found applicable in later analysis.

General Considerations:

The problem falls into physical, social, human, economic and environmental parts. The farmer is strongly influenced by the locale and the community in which he lives. Among these influences, geography is the most important, for this is the locational factor. Distance from the market, in a very significant manner, affects the production of certain crops, in view of the relationship between *value* and *bulk*, perishability and otherwise of the same. Even the subsidiary and allied avocations are influenced by the geographical factor. Second basic consideration is the human one; the personality of the rural worker is actively behind all such enterprises. Expansion takes place in the rural and agricultural sphere, only if the villagers are enterprising, otherwise not. This is dependent upon social factors, but economic considerations are now entering the peasant's calculations: they are now motivated by the economic viewpoint. Even in the backward economies, the economic forces are percolating to the countryside, and influencing the activities there. Still, the institutional and environmental forces dominate the agriculturists' life; in fact the former affect village living to an extent greater than do the latter. The impact of the forces, as moulded by the course of history, shape enterprises in the countryside: these are contemptuously named "superstitions."

Types of Enterprises:

Rural life, especially in its agricultural aspects, is very much homogenous, though variegated. The enterprises, undertaken in this sector, are not strictly agricultural, but of a diversified character: subsidiary, recreational etc. From the agricultural viewpoint, these could be conveniently grouped into: direct or cropping, preparatory or indirect, subsidiary or spare-time activities. First are to be discussed the *direct* or *cropping enterprises*, which, as their name suggests, are directly related to tillage: seeding, harvesting, mowing, and winnowing are included in this group. Seasonal factors influence these ventures, for all agricultural operations have their fixed time for cultivation purposes. Hence in the first instance, weather is to be reckoned with, for farming is, mainly, weather-stricken. Though the forecasting of weather is becoming more precise, yet the element of uncertainty looms large in all these undertakings. Soil humidity has a direct bearing on these operations: sometimes, the soil is able to retain moisture which goes down into the sub-soil, where it is retained. Certain soils remain humid for a longer time, than others; this affects the nature of the cropping enterprises. Frost and snow, too, are potent enough to change the course of farm operations, in that some field jobs could not be undertaken in times of freeze, *e.g.*

spreading lime, hauling manure etc. In these times, it is the indirect enterprises that dominate.

Indirect Operations:

These are also alternatively described as *preparatory*, for in these a preparation is made for the main agricultural pursuits. In certain cases, particularly, a great deal of preliminary work is required for the crops to thrive. The question of the availability of resources—local and individual—is also of some significance. These chores may be enumerated as fencing, weeding, pest control, draining, consructing store houses and granaries. The nature of agriculture is such that specific enterprises require specific preliminary work: dairy-farming calls for preparations to increase milk yield; for fisheries, certain nutrients have to be added to ponds or reserves so that resources are not depleted soon. *Preparatory* operations are quite essential. But, in general, the success depends upon the availability of the requisite resources. Usually, farmers know what is locally available, and therefore, adopt means accordingly. Some resources, may, however, remain unutilised for reasons of poverty and ignorance. Preparatory activities are, often, directed to the multiplication of resources. Foremost among these is finance, especially because of the usually meagre monetary means at the disposal of the peasant, and his low staying power. Also, the time-lag in agriculture is most pronounced, with the result that the fruition of these enterprises takes quite some time. In the backward economies, especially, the vision of the operator is much restricted, with the result that financial handicaps are felt, in these regions. In short, for the success of preparatory ventures, a lot of planning is necessary.

Spare-time Activities:

The purpose behind these is to add another string to the farmer's bow. The farm routine, especially in cropping, is completed within half a year, with the result that between harvesting and seeding elapses quite some time, which could be devoted to subsidiary work. In the backward areas, the spare-time is usually given to un-social and wasteful pastimes, hence the urgent need for subsidiary work of a remuneratives nature, if only to divert the peasants from wrongful channels, and incidentally, add to their incomes. The proper selection of these activities calls for considerable direction and wisdom, for from the economic viewpoint, it is the remunerative aspect that must never be lost sight of. Training and education are quite essential for the proper performance of profitable pursuits, and subsidiary occupations. The one factor, that usually, impedes progress in this respect is the lack of preliminary training and educational equipment for them. That is why, "learn, while you earn", schemes have been launched. A word of caution here: education need not mean a mere acquaintance with the 3 R's: the adult education plans are on a different basis. But the most important factor is personal: with a fatalistic outlook, and superstitious ideas, the farmer could hardly be expected to advance further. Even in the most regimented economies, the personal factor is taken into account; hence the machinery of propaganda and publicity is set in motion to colour the peasant's outlook. It is this personal factor that is responsible for the industrious life of the Swiss peasant, who has to fight the several odds which Nature inflicts upon him, and the unprogressive life of the aborigine who has all along lived in the great luxuriance of Mother Nature.

The Critique:

In the light of the foregoing, it is clear that the human point of view is the most important single factor, spelling out the success or otherwise of the agrarian enterprises. But the impact of the economic and commercial forces, too, should not be lost sight of. The enterprises are grouped into four classes; direct, indirect, subsidiary and cultural. A description of the three groups was given, as the fourth class was considered to be tinged with purely non-economic purpose. The direct enterprises mainly related themselves to cropping, while the indirect ones are of a preparatory nature. Financial and monetary limitations are strong handicaps, working on these enterprises; but the technical remunerative, and personal factors are equally significant.

OPERATIONS OF FARMING:

Examination of further details reveals that superlative importance attaches to the activities of farming, among the agrarian enterprises. Hence, this section concerns itself with the operations of agriculture. A statement of the problem is made and the principle of choice explained. The next paragraph discusses the nature of these operations, with reference to costs and prices. Agricultural operations are sub-divided into *time*, *sequence*, and *miscellaneous* categories; all these classes are described at some length. A separate para is devoted to the problems of farm cultivation and production, and gives a descriptive account of the various types of farming: *specialised*, *mixed*, *diversified*, *multiple*, *family*, *mechanised*. Livestock is also noticed, and the various kinds of cattle farms dealt with. The section concludes with a description of the *marketing* and *miscellaneous operations*. It may be pointed out that the section is mainly descriptive, and introductory to an understanding of the operations undertaken by the individual farmer, for it is he who plays an active role in national agriculture. In a "free" economy, the role of the isolated farmer is already recognised, but even in controlled and regimented economies, his part, though passive, is such as counts for much.

The Problem:

The peasant must determine what cropping system gives him the best remuneration: this means reconciling different conflicting interests. Especially, on a farm, there should be sufficient self-sufficiency in the enterprises, for obvious reasons, as also the resolving of the joint costs, for several byproducts. In the first instance, there are the competing lines of production, which make demands upon his time and resources. The main operations that attract his attention are tillage, dairying, horticulture, or marketing, or a combination of all these. In this choice of operations, he is guided by the possibilities of specialisation and his own capacity; modern farming is getting highly specialised now. There has been a shift from subsistence to surplus farming. Five types of operations could be chosen from: cultivation, cattle, marketing, plantations, and subsidiary ones. It is the "principle of choice" that helps him decide upon his course of action; he would select those operations that would make it worth his while to devote his time and resources. This is a very broad generalisation: a close scrutiny points out that he tries to fit in the major and the minor operations in such a fashion as to promote the former. Most systems are so designed that at least one operation forms the *nucleus* of farming: all the other operations must contribute to the success of this one. In short, the peasant has to weigh all the different and diverse factors in their proper perspective, in making this selection.

Operations, Prices and Costs:

To make the analysis more realistic, the ever-recurrent changes in the prices and the costs of produce must need be taken into account. It is not the temporary fluctuations, that bring about shifts in farming, but the permanent ones that have to be attended to. For instance, in order to be able to pay a cash rent, he must cultivate such crops as bring him the highest cash return. But, not this alone, for shifts in the sociological field, too, have their repercussions on the farming operations: extensive or intensive farming is adopted according to the number of hands available, while the size of holdings depends upon the size of the family and the demographic factors. Further, costs are also influenced by the twin forces of nature and geography, and the economic environment. Purely physical and biological factors affect these operations, in spite of the fact that the natural and geographical limitations may have been overcome: nature's role is decisive, indeed.

Agricultural Operations:

These operations cover farming, livestock, specialised and miscellaneous pursuits. Classification should accord to the point of view which is adopted; one grouping would be competitive, complementary and supplementary; another one is planning, preparatory, substantive and follow-ups; while still another one is part-time, whole-time, or home-craft and domestic ones. Broadly speaking, they fall into *time, sequence,* and *miscellaneous operations.* First are to be dealt with the time operations, which fall into *competitive, supplementary* and *complementary* ones. The first category are those which are more or less simultaneous: one single crop is grown to the exclusion of all others, for certain varieties may demand complete attention of the peasant, who may, therefore find it impossible to run any other operation. *Supplementary operations* are such that the demands for labour and capital do not conflict; these supplement each other and thus help to reduce, or even eliminate the idle time, men or equipment. These ventures are usually well integrated: hence are preferred to the competitive ones. The farmer is usually in search of a happy blending of operations that are of a supplementary character. The complementary operations, on the other hand, contribute to the success of each other. The farmer enjoys *gaps* and *recesses* between crops and harvests; the complementary operations serve to fill these and punctuate his routine with productive work. These operations are simultaneous in character, but often confined to advanced and progressive agriculture. To sum up the complementary and the supplementary operations have resulted in diversified agriculture, and mixed farming, which are the modern trends in agriculture.

Routine or Sequences Operations:

Four distinct types may be enumerated: *planning, preparatory, substantive* and *subsequent.* The first two relate to the preliminary stages, while the latter, to actual tillage. The planning stage is significant for the conscientious peasant, while the preparatory operations serve as a preparation to the main job, or the substantive ones, which in turn are followed by the follow-up or the subsequent operations, undertaken to do the winding up. *Planning* operations should be an essential pre-requisite to agricultural chores; even an illiterate farmer does take mental notes of what he plans to do. These operations, may, however, remain "invisible", for they are undertaken largely in the off season.

In the primitive and the backward economies, they are conspicuous by their absence, for farming is, often, reduced to routine, established by superstition, religion and/or custom. The preparatory operations are "visible", for they are prominently placed in the farmer's routine. What kind of preparation is required by what type of crops, is known to all farmers. A judicious selection of these preparatory assignments enables him to increase productivity, improve efficiency and above all, to eliminate waste quite. The *substantive* operations are the main jobs in tillage, *e.g.* cultivation of a certain crop. These are often whole-time vocations and absorb his full time, being the major ones. The *subsequent* or the *follow-up* operations are those that come after the main substantive ones, but are essential, if the enterprise is to be made sufficiently profitable: *e.g.* processing, or weeding. Sometimes, these may be indistinguishable from the preparatory types, in that they are preliminary to the substantive pursuit. Sometimes, it can so happen that the whole agricultural enterprise may become unremunerative, simply because there has not been a correct follow-up. These operations may be *subsequent*, but are essential and indispensable.

Miscellaneous Categories:

The two classifications that follow are from the *linkage* and the *production* angles: the *former* include such operations as *major*, *minor* and *subsidiary*, while the *latter* include the *productive*, *unproductive* and *wasteful* ones. Under the first group, the *major operations* are also the substantive ones, *i.e.* those on which the peasant lays great emphasis, while the *minor* ones are only incidental to the major category, but could be regarded as independent pursuits. The *subsidiary* operations, on the other hand, are derived from the major kinds and are subsidiary to them, being dependent on them. Under the second class, the *productive* operations result in concrete production, while the *unproductive* type, refer to his social obligations, that have to be undertaken to lead a normal life. But the *wasteful* operations are definitely injurious, for they result in wasteful activity, *e.g.*, litigation. In the backward and under-developed communities, it is the unproductive and the wasteful activities that dominate the farmer's routine: this fact explains the unremunerative character of agriculture there; productive operations should be encouraged, and the unproductive ones weeded out, while the wasteful ones eliminated.

Cultivation and Production:

In the matter of crop selection, the peasant is guided by the principle of choice, adverted to above. First consideration before him is the remunerativeness of crops, in terms of value per acre. But not this alone; natural limitations shall also have to be weighed. Another factor would be the *net profits* per acre. Again the major crops do gain preference over the minor ones. This leads to an examination of the principle of choice. In all calculations, two bases for comparison may be used: net return per man-hour (where intensive work is undertaken), or profits per acre, (where cropping is not intensive). But, crop selection is dependent upon the nature and character of the soil, the peasant's resources and equipment: it is the resultant of all the various facts and forces, as operative on the farm. Only when a number of operations require approximately the same amount of labour and equipment, at the same time of the year, and at essentially the same place in the peasant's routine, that the problem gets simplified. But generally speaking, the problem of crop selection is rather complex. From the tillage aspect, there is the usual grouping of farming into: *specialised*, *mixed*, *diversified*, and *multiple*. *Specialised* farms may be devoted to the growing of a single crop, *e.g.* potato, corn etc. The most remunerative crop is selected for cultivation: the advantages of expert knowledge and specific utilisation of the soil accrue, while the benefits of research and technique are also gained. But, as against these, the peasant may suffer from his over-dependance on just one crop or commodity, especially during a natural calamity. Certain crops may serve as the "nurse" to others, and may thus be selected. But the modern trend is towards *mixed* farming: the growing of the supplementary and the complementary crops is undertaken. The principle of *comparative advantage* may be followed and the joint relationships of supply weighed. Comparative advantage is calculated in terms of gross return per acre, net return per acre, net return per man hour, or net returns on the farms. In *diversified* farming, income is not from one, but two or more sources; the most advantageous operations are combined with cultivation. This ensures longer and better employment to all the family, while the fertility of the soil is kept in better balance. The danger, however, is that the peasant's attention may be diverted into many activities, all of which he may find it hard to attend to, especially when there is diversified location of farms, *e.g.* fragmented holdings. *Multiple* farming (or alternatively termed as combined farming) admits of several combinations of farm operations; feed-and-livestock farming, food-crop-livestock farms. Advantages, similar to those gained from mixed and diversified systems, are reaped. This type is specially suited to family farming, but if the various combinations are judicious.

The Economic Angles:

The next classification of farming operations is from the economic viewpoint; the various operations are described as the *subsistence*, the *family*, the *surplus* and the *commercial* types (the income angle), *mechanised* farms, *plantations*, and *vegetable gardening*, from another view point. In the first instance, the income aspects dominate the system of farming. *Subsistence farming* provides a bare subsistence to the peasant, and nothing more; it persists in those economies that are on sub-human levels of existence. *Family* farms, which seem to have become fairly fashionable now, provide for the family; these days the big estates are being broken up into family units. These farms afford the largest number of peasants with employment, but are likely to degenerate into subsistence types, unless a minimum holding is fixed by law. Under *surplus farming*, the cultivator has a dispensable and marketable surplus, which he sells; this type may be considered as an improvement on the above two. *Commercial farming* is only pursued for the purposes of marketing the produce, and the emphasis is on the cash crops, while under the former two types, the emphasis is on the food crops. Modern *mechanised farming*, however, is not a little different from this description: the stress is on the application of modern techniques and on scientific farming. In the modern advanced economies, this is the usual practice, though not in the primitive, backward and underdeveloped regions. Agricultural cultivation is getting more and more diversified, and for this reason, it is the modern mechanised farming, that is more suitable. *Plantations* and *horticulture* differ from all the above types, in that, the planter has to wait long before, he could reap the fruits of his ventures, for the operations become remunerative only after a long time. Fruit and nut growing are long range enterprise and have very high investments initially, and large manpower requirements all along. Again, on these farms, adjustments in respect of price-cost relationships are hard to achieve. *Vegetable gardening* is nearly similar to fruit farms, but they are more numerous, for the investment in terms of waiting, labour and money is not so high. These farms can also shift from one type of cultivation to another, both in respect of location and production. Decisions, in respect of selection and sequence of crops are very much subject to the vagaries of the weather. The problems of marketing —inclusive of grading and packing—are rather tough for the vegetables.

Livestock and Other Operations:

Cattle are the farmer's most important asset, and his best aid. There may be livestock farms of a specialised character: feed-

and-livestock, and crop-and-livestock farms etc. Broadly speaking, poultry-farming, dairy-farming, sheep-farming and cattle-ranching are included in this variety. Rotation of crops is practised on these farms, for feed-and-fodder fits in with other crops in rotation. In livestock operations, the peasant has to incur heavier costs, than on other varieties. The usual objective is to secure the most profitable utilization of home-grown feed and fodder. Another consideration is that the yields on these farms may be higher than on the other types. There are several kinds of cattle enterprises: specialised livestock farms (one or two operations), the feed-and-livestock farms etc. But as the scope of these (cattle) farms broadens, there is increased demand for skill, and investment. This particular variety is easily the most remunerative. Included in other operations, are those that refer to marketing (which will be dealt with at length in CHAPTER VIII, THE PROCESS OF PRICING): the markets may be local, regional, national, and international ones. Vegetables and other perishables would tend to be grown near the market, for the costs of transport or storage may be rather heavy. Another classification of markets is into primary, secondary and terminal ones. In short, the first stage in marketing concerns itself with the procurement of the produce, the second stage with the stocking, while the final stage with retailing and disposing off the produce. Under miscellaneous operations, most of the indirect ones are included, *e.g.* farm accounts and records, book-keeping, and inventories, surveys and records. Modernised farming is becoming complex, hence the need for all these activities. Other operations are directed to securing assistance from the state, public and voluntary agencies, and applying the latest technique in agriculture on his farm.

Farmers and Operations:

From the above descriptive survey, it is clear that the operations of farming are material to a farmer, and therefore for clear understanding to a student of agricultural economics. Adjustments are made in regard to the price-cost relationships in all the various types of operations—planning, preliminary, substantive and subsequent ones. The principle of choice applies not only to cropping, but also to cattle enterprises. Another thing that needs to be restressed is that it is the personal factor that counts for much in all the various operation, studied above. Next in importance rank the financial aspects of farming, for these are significant determinants of the business af a farmer, who, however, could supplement them with assistance from certain agencies.

AGRICULTURAL SYSTEMS:

This section seeks to uncover the various systems of agriculture, which are prevalent in different economies. Certain aspects of agriculture are studied as an introduction to the main description, and a distinction between operations and systems drawn. This is followed by a scrutiny of the interfarm organisation which covers the study of family farms (now from a different angle), scattered farms, compact types, and settlement ones. The decentralised varieties and the integrated systems of farming are also given some space. Group management and co-operativisation are equally important topics followed with an outline of unit cultivation. In this connection, attention is drawn to farming skills, and a critical estimate of the systems of peasant farming, estate farming, and tenancy is also given.

Systems and Operations:

Tillage is easily the most important job in farming, but those chores, which are external to it are of minor importance. A distinction needs be made as between the terms "operations" and "systems": the *former* refers to the *tasks* undertaken on a farm while the *latter* to the *patterns* according to which agriculture is organised. The significance of "operations" lies in the fact that they refer to numerous jobs in the field of agricultural activity, and their place in the routine of farming. "Systems" inform about its organisational aspects. The former, in this context, bear upon the latter, which in turn, determine the rural structure. Meanwhile attention is devoted to interfarm organisation.

Interfarm Organisation:

The main types in this organisation are the *scattered* and the *compact* farms; other varieties are the *settlement*, the *decentralised* and the *integrated* ones. The farm has to be distinguished as a *business unit* from a *producing* one. Self-sufficiency is the usual goal on the *homecrafts*, and *residential* plots (known as *workingmen's allotments*). The farm is also a *statistical unit*, but that interests the investigators only. On the *family farm*, the farm and the family function together, and production is on the basis of self-sufficiency for the family. A *family-size* farm would be able to absorb all the men in the family; other types may be *small holdings*, *part-time units*, *homecrafts*, and *workingmen's allotments*. On the *homecrafts*, manufacturing is combined with cultivation. The *residential* farms are maintained for the purpose of residence rather than for production; similar are *garden* types. *Scattered farms* may have several patterns: rectangular, regular, irregular, parallel and divided. These holdings are, as the term "*scattered*" implies, fragmented, with all the advantages and disadvantages thereof. The *compact farms* may be on the small or the large-scale, depending upon their size; some of them may be *centralised*, e.g. the plantations etc. Compact farming avoids the evils of fragmentation, but its centralised variant may precipitate the dangers of absentee-landlordism. The *settlement farming* is characterised with residential compact homesteads, with the *settler* living on the premises, and the settlements composite and not specialised and running *multiple* operations. *Decentralised farms* resemble absentee-cultivation; their cultivators, the *croppers*, live in small houses and work on lands nearby, with equipment, which they store in the "headquarters". Usually, the cultivator is not paid any wages: he is on a shareholding system, e.g. *Batai* in the Punjab. In Latin America on the *hacindas*, the landlord makes them permanent allotments, instead of paying them any wages. Last variety in this group, the *integrated farm*, also known as the "Walker-Gordon" type, is in vogue in the U.S.A.: under this system, some farms may for example grow the feed for dairy yards on a contract basis, while they obtain from the dairy farms or the central management, manure and other supplies at contract price. Its essential is that all supplies are mutually consumed, and all operations are quite complementary; the farmers have no marketing problems of any sort.

Group Management:

The variants are usually communal ones: the common characteristics are that the individual rights are indistinguishable, and the goals of cultivation are the common accepted ones. Rights, and privileges are, often, joint and indivisible. Under joint farming, success depends upon the prevalence of the community spirit, and the bonds that thread this organisation. Traces are to be found in the village commons, which are owned by the village community. But with the rise of individualism, this community spirit has now decayed. *Communal farming* appears to be a relic of feudalism: there is joint ownership, with operation in strips of arable land, and common use by farmers of pastures, meadows and woodlands. *Landholding villages* are set up, and the arable lands are distributed among the peasantry, but if a farmer did not cultivate his allotment, the village assigned it to another family. More land could also be acquired by clearing and reclamation. Advantages arise out of its strengthening the village community. *Joint farming*, another variant of this system, prevails when cultivators come from the same stock, and land is often inalienable, though the share of each family is known; even if somebody wanted to dispose off his share, he must sell it to the community. The ends of agriculture are not personal but the common communal ones. The well-knit organisation of this community makes for the strength of agriculture, too.

Cooperativised Farms:

A form of joint organisation, these farms have brought to the small farms, the advantages, of large-scale agriculture. Cooperation has now extended to almost all types of activity, and is especially proven useful in cultivation. In the advanced countries, it has embraced the spheres of electrification, insurance, water-supply and telephone services in the rural areas. Its non-economic (and invisible) advantages far outweigh the merely economic (and visible) ones. It is the instinct of ownership that cooperativisation does satisfy, without the evils of private property. There are four distinct forms of the cooperativised farms: Cooperative *Better* Farming, Cooperative *Joint* Farming, Cooperative *Tenant* Farming, and Cooperative *Collective* Farming. The first variant is also known as *"Service Cooperatives"*, for it pools the services, required in farming, and supplies the same to the farmers on a cooperative basis, and thus conduces to a better system of farming; this is the loosest and the most elementary type of cooperative associations, and is considered as an initial step to cooperativisation. In *cooperative joint farming* societies, individual ownership rights are recognised, but tillage is done on a joint basis, for the holdings are pooled together. Under *cooperative tenant farming*, ownership is joint and collective, but operation is individual by tenants, who are paid wages for their work, while the owners get dividends; in the last variant, *cooperative collective farming*, ownership as well as operation is collective: joint cultivation is undertaken by all members who are paid wages, while the profits are distributed on an agreed basis. Generally speaking, the cooperativised farms bring about several advantages to farming as well as farmers. Several economies, external and internal, accrue to cooperators, while all forms of exploitation may also end. Each member is directly and intensely interested in the enterprise, which thus improves, both in remuneration and production, if not in technique. It may be said that the better farming societies are the loosest forms, while the joint types are regarded as significant improvement on these, for with them the development of better technique is also possible. The tenant cultivation, under cooperativisation, could be credited with benefitting the rural society with greater employment but is not much in vogue. Collective farming has attracted much notice, due to its being practised in the U.S.S.R. and recently in China. Ownership rights are sunk, and cultivation carried on under the direction of the society, which in turn is guided by the State which also takes up research, education, and planning. Cooperative management (which is a form of group cultivation) is an improvement on other types of cultivation; but its success depends upon the inter-relation in the group. It is characterised with elasticity of management, and democracy of outlook, while it also revitalises the rural community: it is easily adaptable, too.

Unit Cultivation:

It has been emphasised above, that the individual farmer remains important, even in the regimented economies. The group is not so very effective in farming, as to efface the individual farmer quite, who still retains his place of prominence in the agricultural systems. Under unit farming, it is the interest of the family that is supreme; this flourishes in the countryside, which is saturated with a spirit of individualism. The success of these farm enterprises is dependent upon farm skills: farmers must be able to make a number of decisions, all by themselves, for a long range of operations await them. Farming skills have an important place in unit cultivation; even farm labour is required to be able to discharge many chores, and make independent decisions. In this respect, the job of a farmer is more complex than that of a factory labourer, who may be efficient only in his own assignment. The farmer must be a jack of all trades, in order to be efficient and successful. These skills are especially called for in "peasant farming", or what is alternatively known an *peasant proprietorship*, where a unit of cultivation may vary from the *subsistence* to the *optimum* or *surplus* size. Usually, these farms are family holdings, with a large number of unpaid family workers, as also dependants. *Peasant* and *ownership farming* is useful in providing larger employment to the whole family, and also promoting agricultural productivity, though it may deteriorate into unprogressive and uneconomic tillage, with growing sub-division and fragmentation of holdings. But in the words of Arthur Young, it has the virtue of "turning sand into gold". Another variety of unit cultivation is *metayage*, which has further variants. Its one farm is that some sort of division of costs is made, and the produce is shared between the cultivator and the owner: in France, the landlord furnishes land, implements and livestock, to receive half the produce in return. The evils of absentee landlordism are eliminated, for the landlord takes pains to improve tillage, in order to raise more produce, if only to heighten his own share. Also, the limitation of his capital resources, which under any other system, the peasant may find it difficult to supply, if left to himself, is also obviated. This system is, therefore, an improvement on peasant proprietorship. These advantages are, however, neutralised, when the peasant-landlord relations are strained. *Estate farming* is another variety of unit cultivation; the land belongs to a landlord, in one big compact piece, or in scattered fields. The landlord is usually an absentee, who does not take active interest in his lands, or their cultivation. He may employ a large labour force on payment basis, or let out the land to the highest bidder. Land-hunger is often responsible for engendering keen and cut-throat competition among the tillers; the result is that rack-renting prevails and land deteriorates in fertility, for the richest crops are grown on it. Unit cultivation also extends to tenancy, which is born out of estate farming systems. There are four types of tenants: the *occupancy* or the *hereditary* (whose forefathers were also tenants), the *proprietary* (who were once proprietors of the lands they now till as tenants), the *protected* (whom the legislation gives some rights and privileges) and the *tenants-at-will*, (who could be turned out at will). Whatever the form of tenancy, it should be clear that it is an accursed system and therefore being weeded out.

Aspects of Agriculture:

From the above survey of the agricultural systems, it is clear that there is a variety of these. The distinction between operations and systems had sought to impress upon the reader the fact that "systems" are more significant, in that they describe the organisational aspects of agriculture. It appears that the systems of tillage have an important bearing upon the organisation of agriculture. The agricultural systems have been grouped into three main classes; the interfarm organisation, the group cultivation (including cooperativised farming) and the unit system. Interfarm organisation is concerned with the patterns of farming; ranging from scattered farms to integrated systems: the family farms, the scattered and the compact farming, and decentralised and the integrated types. These are both the horizontal and the vertical varieties; in the horizontal variety, the farms are nearly on the same level of cultivation, while in the latter they are complementary to each other. Group management comprises the system of cooperativised farms as the most important types; communal farming is descended from feudalism, while joint farming is practised in compact form. Cooperatives deserve special treatment, for they receive much emphasis these days: they suit the various types of tillage admirably well. Under unit cultivation, the most important variants are peasant farms, estate farms, metayage and tenancy: these systems are still important though cooperativisation is fast enveloping all farming.

SUMMARY AND CONCLUSIONS:

This chapter has attempted to give a picture of modern farming. The place that agriculture occupies in the world is brought out in the first section, and the role of the F.A.O. stressed. Rural movements, to which a reference is made, reveal a high degree of peasant consciousness. The next section, "National Agriculture", lays emphasis on balancing the economy through agriculture. Admittedly, the role of the individual in the society is still of great significance, though the peasant is ever-ready to lay his life for the national cause. At the national level priorities refer to economic self-sufficiency (especially food), diversification of the economic effort, coordination of economic life (through agriculture). Next section deals with agrarian enterprises; their types—indirect, direct, and spare-time—are described: the stress is on the human viewpoint. In the following section, "operations of farming", details about various operations—time, sequence, and miscellaneous—have been given, while viewing the problem from the price-cost angles, the production points, and the economic aspects. Livestock and marketing operations have not been lost sight of, for in this material world, even the religiously-minded peasant is affected by monetary considerations in operations. It is the personal factor, that counts for much, rather than any other; if the farmer's outlook is bright, the operations bring prosperity to agriculture, otherwise, all efforts remain damp. In the last section—"agricultural systems"—interfarm organisation, group management, cooperativised farming, and unit cultivation (with their several varieties) are described. *To sum up*, the farmer is the most important factor for the success of the enterprises, operations, and systems connected with agriculture, but he is, unfortunately, the creature of his circumstances; this leads on to a consideration of the village organisation, and how it affects the attitudes of the peasant and through him, his system of tillage: this is truer of rural economies than of others.

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SELECT EXERCISES AND QUESTIONS:

1. Bring out the role of agriculture in the backward, primitive, underdeveloped and mature economies, in the world of today. Why is Agriculture fundamental?
2. Give an account of the recent Rural Movements and bring out their significance.
3. Distinguish between enterprises, operations and systems of farming.
4. Critically examine the assignments and achievements of the F.A.O.
5. Describe the various types of agrarian enterprises, farm operations and agricultural systems. Give examples from backward countries, say India.
6. What place does the peasant occupy in national agricultural economy.
7. Write critical notes on interfarm organisation, group management and unit cultivation. Under what category would you include cooperative farming and why?
8. State the case for and against cooperativisation, as applied to farming.
9. Why is the system of unit cultivation persisting, in the modern world, which is being swayed by nationalism, or group loyalties, and not by individualism?
10. Assign to agriculture, its proper place in national economic planning.

CHAPTER III

ENVIRONMENTAL ANGLES

Village Organisation—Rural Structure: Village Types: The Correlation: Rural Characteristics: The Changing Village: Rural Dynamism. Management of the Farm—The Management Function: Farm Management: Management Practices: Specialise Problems: Success in Farming: The Critique. Location of Agriculture—Industry and Agriculture: Theory of Location: Determinants of Location: Selecting a Farm: Valuation of Farm Property: Agriculture and Locale. Summary and Conclusions.—Focus on Organisation. Select Questions and Exercises.

UNDERSTANDING of farm enterprises, operations and systems enables the reader to appreciate the importance of village organisation, farm management and the problems of location. The term "village" is to cover the whole countryside in its widest possible sense. The environmental angle plays an effective role in agricultural economics. This chapter, will, therefore, discuss the problems relating to the organisation of agriculture, as influenced by the village structure, the problems of farm management and those arising out of location. While the approach is mainly descriptive, the reader is initiated into the analytical aspects of the description, for that will later on be useful to him in weighing the various issues raised here.

VILLAGE ORGANISATION:

In rural living, agriculture is still the most important avocation of the villagers, who are therefore, affected by its nature. Rural structure shapes the ways of agriculture. In this connection, it may be pointed out that the scope of the section is wide indeed, ranging as it does, from a descriptive survey of the village structure to rural dynamism, while examining the process of change in the village, and establishing the correlation between the village structure and the mode of agriculture. True, that industrial villages have also begun to be formed, but that trend is as yet too experimental to merit a detailed examination; villages are still mainly dominated by agriculture: hence the importance of agriculture in village structure, and *vice-versa*. It is only in this context, that the real place that the farmer occupies is to be assessed.

Rural Structure:

The importance, agriculture has in the rural set-up, is well known, it is proper to study the structure of the village, as the resultant of forces, social economic, traditional and cultural, which have been operative through the ages. Recently, the village life is being moulded by political factors, too, for the hoary and age-old isolationism and self-sufficiency of the village is now being broken. But this must not be understood to imply that agriculture is pursued to the exclusion of all other callings, it only seeks to impress the fact that it is the chief calling, outweighing all others. The first and pioneer settlements were founded near places where water was abundantly available, that was essential for farming. If this reasoning is correct, then it follows that the complexion of agriculture does influence the character of rural life. To reconstruct village life it is imperative that the agricultural reconstruction should also be undertaken; the reverse is equally true. Farm organisation has an important bearing on rural structure, which closely follows agricultural patterns. Scattered hamlets characterise the scattered type of farming, while farming villages are found where compact tillage prevails; and settlement villages, where settlement farming has been in vogue. Recently, cooperative and collective villages have grown on the foundations of collective and cooperative farming. Village community is moulded on the pattern of farming. Agricultural relations are the resultant of the .twin factors: farming systems and land tenures, to be studied later in CHAPTER VII, THE SHARING OF PRODUCE. On the relations depends the occupational distribution in the village. Usually the farmer does not like to live far away from the place of his work; he prefers to settle nearby. But it is possible that several types of systems may prevail in the same region, though improbable that different classes of cultivators inhabit the same village; that is unusual and rare.

Village Types:

There is indeed a variety of villages: there are regional, geographical, cultural, social and economic differences in organisation. Village is the centre of all rural activity. Its set-up is the resultant of several forces: traditional, historical, evolutionary, social, cultural and economic. The village types to be described here, are agricultural not sociological: the emphasis is on purely rural aspects. The main kinds are *scattered hamlets, farming* and *settlement villages, joint types, group habitats*, and *proprietary variants*. There is elasticity of structure and some departure from the original design, warranted by strict theory, and there is sometimes divergence between the village structure and the farming systems. First among these are *scattered hamlets*, which very closely correspond to *scattered farming*: there are several cottages, planted on the respective farms, which are themselves scattered. These *farmsteads*, as these cottage may be termed, are in a way isolated from each other. Farming is diversified, for the family depends upon the farm for most of its needs. This type prevails in grazing lands. Next are the *farming villages*, where the majority of the inhabitants are farmers. The holdings may be compact or scattered (fragmented): this fact admits of several types of village layout. Farms are spread out in strips; while the village *common* belongs to all, and may comprise woodlands, meadows and pastures, or all of these. Villagers have the advantages of mutual security, against external aggression and intervention, and are often self-sufficient. They present a closely-knit social organisation, and hinder the rapid growth of individualism, of an extreme type. But the danger lurks that the traditional mores of life become stratified. *Rural settlements*—another variant—have grown in new countries, like the U.S.A.; a land-hungry mass settled there, even at the cost of some inconvenience. They fall into two categories: the *homogenous* and the *isolated*. Homogeniety has been achieved through a process of social evolution, and is responsible for the development of traditions of living according to a set mode: social contact and institutional relationships have been evolved. With the passage of time these became *mixed* comprising the characteristics of both the *scattered* and the *compact variants*. The *isolated villages*, too, are common; here group unity is not to be found, for integrated living broke down due to the movements of settlers into different directions, though in the neighbourhood. Legislation speeded up this process, for laws bound a man to his farms. But family solidarity is encouraged, for that is essential to brave the hazards of isolated living. Mechanisation has come about as matter of necessity. In these villages, however, social services are usually dear. Still, some sort of neighbourhood, naturally, grows round some institution, *e.g.* the school, the church etc. *Joint Communities* have, on the other hand been based on the foundations of communal farming and joint cultivation. The village land is held in common; the families are allotted lands to till, though without permanence of cultivation rights. Joint villages are characterised with an elasticity of organisation, while common interdependence is marked. Excessive interdependence and kinship may damp individual initiative, and village institutions get antiquated, no longer efficiently serving the peasant; there may be little chance of progress, except for the community as a whole. Under the impact of urbanisation, this communal life is crumbling down. Akin to these villages, are the *group systems*, which are the outcome of collectivisation or cooperativisation. The collective farms—examples may be found in the U.S.S.R.—are producing units working under the directions of the State; the cultivators, who get fixed wages (and bonuses) live in villages and have houses with attached gardens.

It is the executive body that makes decisions which have to be carried out by all. There may be a certain amount of autonomy and administration vesting in the village body, which may, in turn, work under the orders of the central authority. No common bonds, except of a common vocation, thread the lives of villagers. The modes of living are neither customary nor traditional, but those dictated by an external authority. Under the cooperative variant, village composition, structure and organisation is similar to their collective counterpart. The essence of cooperativisation is decentralisation and democratisation. Four distinct kinds of cooperativised farms were enumerated in the last chapter, but it need not be inferred that there are four distinct types of villages conforming to each of these farming types; the farms refer to internal organisation, while the village structure is an external symbolisation of the same. Elasticity of farming organisation reflects itself in the bonds that knit the village. In the loose forms, village is not so well-integrated, while under the closely-knit types, the village community strengthens itself. Still, the fact remains, that the individual farmer does not suffer any exploitation. There is also strength gained from the surrender of individual rights voluntarily, though it may not endure, being too voluntary—and this is its main defect. Under the *proprietary variants*, the villages belong to landlords, their hold is strong; none dare defy this, the village communities have no status, being composed of mere tenants and serfs, without any significant rights or privileges, except those conferred upon them by law. From this survey, it may be inferred that rural sociology is typically local: rural types vary from region to region. In this bird's eye-view, evolutionary factors have not been much emphasised, for categorisation may be difficult, in terms of evolutionary growth.

The Correlation:

There is an inter-relation between the systems of farming and village organisation. This does not mean that there is any mathematically rigid correlation, it is merely accident and chance that establishes the correspondence. This study would shed light on various rural problems and also set the limits to which the present farming practices, within a certain rural environment, could be moulded or reformed. In the first instance the formation of the village precedes the farming systems to be adopted there. The farming systems undergo a change with the process of time, but the village organisation does not: it is the resultant of certain social forces, while farming may be the outcome of economic factors, too. The rural structure need not always be affected by farming, the broad patterns may deviate from the original a little due to agricultural practices. Farm pattern may, indirectly, influence the course of changes brought about in the village, though its organisation, in its various aspects, does have an effect on the village organisation. For instance, the scattered villages may usually be coincidental with the scattered farming system. But this may not hold true of the farming villages, which may run several types of farming. The homogenous and the isolated types arise out of farm practices. Settlement villages shape out of the pressures of the dynamism of change. Joint villages are more or less static, and their farming often outgrows their organisation. The group systems flourish or decay according as they reap the advantages of joint farming, or are unable to do so. In the cooperatives, the bonds are voluntary, and intimate, while in the collective types, they are external and loose, though in both cases, they are rooted in the farming systems. *Land Tenures*, patently, influence the organisational aspect of the village. For instance, under Zamindari (Landlordism), the village structure is proprietary, while under peasant proprietorship, it conforms to farming types. Land tenures, too, shape the agrarian relations; so strong is their influence that villages are often known after the tenure of land. Again, they affect the system of farming, and through it, the village organisation. And above all, the land tenures determine the pattern of rural living: the old established customs arise out of their working in the past. But it needs be understood that the process of village evolution is composite, and any one factor alone could not have been responsible for its organisation as such. Other factors include tribal organisation, caste system, and several sociological forces. Religion may have led to the growth of certain villages *e.g.* Quaker villages; political factors might precipitate the establishment of certain other types: Latin American village organisations, implanted from Spain. In sum, the effort to establish a correlation between farming systems and village organisations may not be fruitful, though some sort of correspondence does exist.

Rural Characteristics:

Certain distinctive traits belong to the rural society: conservatism, self-sufficiency (although this is now on the decline), family, religion, early marriage, and its universality. But all these are undergoing a marked changes, under the impact of industrialism and urbanism. In the backward areas, there is a known preference for self-sufficiency, for with food and shelter being secured, these people do not crave for anything else. Villagers are, usually, not addicted to the modern amenities of life, hence they can be self-sufficient. Tardy means of communication, may have been responsible for this outlook. Their conservatism and suspicion of the townsmen, probably, stands in the way of their progress. This self-sufficiency is now breaking down. Still, the rural masses have tried to make use of the locally available resources—this has engendered a sense of self-sufficiency in them. The second important characteristic is that they are closely-knit and well-integrated: they share their joys and sorrows in a mutual manner, and rush to each other in times of need. Another aspect of the same is that the villagers usually produce what their community needs; their efforts are complementary and supplementary. Sufficient amount of self-government in the village also promoted this trend towards integration. The two types of rural integration are *vertical* and *horizontal*: the former proceeds on the basis of one unit feeding another, while the latter embraces complete enterprises, though these may be coordinated. The village *common* is characteristic of rural organisation: it provides the forum for village communal life and is also the recreation centre. Custom has given to it an inalienable character: all have equal rights of using and sharing the common, though the community owns it. It is thus the hub of social activities and functions.

The Changing Village:

The modern rural community is undergoing a transition, under the impact of rapid communications, and the twin forces of urbanism and industrialism: there is no longer the same old self-sufficiency, nor integration as before. The Press, the radio, the system of adult franchise, and several economic pressures have invaded the village. The nature of the change has, however, been socio-economic. The people are no longer contented as they used to be. The spirit of individualism has invaded it, and shattered the age-old edifice. The ruralisation of industrial location has widened the horizons of the ruralites. A closer contact between towns and villages is being forged. Disintegration, as in the community and its economy, has come in: individualism, the loosening of communal bonds, the widening of the educational opportunities, and the centralisation and modernisation of administration have all done the trick. And above, all, the extinction of barter, and the rapid monetisation of the rural economy have ushered in a new era: the village society is breaking down under the pressure of all these forces. Examining the urban influences, one finds that now, as never before, the village is being drawn closer to the towns. The growth of the enterprising spirit among the farm youth, the raising of his cultural levels and the widening of his contacts have urbanised him. He is no longer content with subsistence or family farming—he produces for the market, and is improving his system of tillage.

The third force is *individualism,* which has parcolated down to the humblest farmer. The result is that the joint structure of the village has crumbled, and rural relations have deteriorated. This change has pulled them out of the morass of contentment, and released them from the shackles of custom and caste. But it has encouraged the spread of litigation, and the swallowing up of the smaller fish by the bigger species. Another fact is that now farm incomes are also dependent upon non-farm earnings: this is glaringly evident in the economic dependence of the ruralites on the townsmen for the disposal of their goods. With increase in his purchasing power, he has now means to buy what was once a luxury; for his consumption he is dependent on the non-rural world, while for better farming, too, he looks beyond the village. Thus have been precipitated the problems of marketing, which have been intensified by the surplus character of farming, and the monetisation that has broken his shell. The farmer is no longer the same superstitious folk as he once was—his horizons are now much widened and he is quite a wide-awake person. Even in the backward countries, the peasant is participating in so many political movements. A dormant mass is now bubbling with activity. A change of outlook has, at long last, paved the way for a change in the rural way of living. The community development and the extension movements have brought new promise to the villagers. The modern rural outlook is, therefore, significant for agriculture, which has in recent years, recorded more changes than in industry and commerce. The peace of the villages is disturbed by the hectic forces of modern living. Rural consciousness has been roused to the highest pitch—the masses are now awake to their down-trodden-ness; and are not now resistant to the process of change, as they were before. The time is opportune now for bringing about a change and ushering in a new era. The security of life, and the permanency of tenure are contributory forces. In short, the modern rural outlook is less conservative, less suspicious, but more progressive than ever before.

Village Dynamism:

This section has dealt with various aspects of rural life and analysed village types, rural characteristics, and the changing village. A correlation has been sought to be established between farming systems and village organisation: some sort of distant inter-relation seems to persist. Various factors influence the growth of the village: agriculture has the most intimate effect on the same. The impact of farm organisation on the rural set-up is also appreciated; this was followed by a shift in the emphasis to the village types. The scattered hamlets, farming villages, rural settlements, group systems, and proprietary types of villages are described above in details. The inference appears to be that the village communities and their formation are the product of the historical and evolutionary forces. The organisational correlation is found to be rather intimate: certain villages came into being as a result of the farm structures originally prevalent, while others evolved due to the operation of certain sociological forces. There is also the difficulty of establishing a direct correlation between the land tenures and village types; their influence through agrarian relations may be underlined. In short, sociological, political, social, evolutionary, and economic forces have led to the formation of villages—all these acted and reacted on one another. Next were noticed at length the characterisatics of the rural society: self-sufficiency, integration (vertical and horizontal), and village common are noticeable; the minor traits are grouped in one paragraph. The village in transition attracts attention; there is now a closer contact between the village and the outside world, whose forces are affecting rural life and ideas. Disintegration of the village has come about, and traditional mores of life modified greatly. Individualism is fast spreading, and the economic dependance of the village on the outside economy has increased remarkably: this has affected both the income and the living of the villager. But rural horizons have now widened, and the farmer's outlook broadened, especially in the backward economies. The modern rural outlook is quite progressive; the time is ripe for the implementation of plans of economic development, that may be broadbased on the rural folk, whose role in the world of today is very significant indeed.

MANAGEMENT OF THE FARM:

The subject of farm management has recently assumed quite some importance, in view of investigator's researches having been directed to this aspect of agricultural economic activity. Under this heading is proposed to be studied the nature of the management function, (including its definition and critique), the problems attending upon management of farms, an introductory probe into the farm management issues, and special problems of special farms, and finally the determinants of success in farming. The section ends with a summing up of the thread of the argument. The reader is now initiated into an analytical description of the management problems, for this section is not merely descriptive but also critical of the issues raised. The individual farmer is kept in view, though the social canvas is not lost sight of. But the sensible assumption is that a conscientious peasant does not take a line of action as may be in conflict with national objectives and interests, especially of farming.

The Management Function:

By this term is implied the assignment of the entrepreneur in managing his production unit. It has come to occupy an important place in economic theory and practice. The entrepreneur bears the risks and responsibilities of running the plant, maintaining its efficiency at a high pitch. There is now divorce between management and enterprise: this has resulted in the specialisation of the management function, which is in the purview of the expert. In this study, (when applied to farming), the ends of farming and the forces, responsible for his success do matter. State activities, and policies do influence the decisions of the individual farmer in the business of farming. The special institutional forces and factors, as operative in a country, would also count for much. The function of farm management thus covers the jobs of organising the farms, and planning them, as also directing their operations. These chores are of a repetitive nature. Small farms cannot afford paid managers: the farm management function is undertaken by the farmer himself. A host of problems are raised, including organisation, operation, buying, selling and financing of the farms. Simple as the problem may look to be, it is in fact a very complicated issue in view of the meagre resources and limited experience of the peasant. Various questions demand solution: what to produce? what types of equipment to employ? and what practices to follow on a certain farm? Distinctive choices have to be made as between several crops and operations. Recently, the question of mechanisation of the farm operations has assumed a significance of its own, while the problems of the large-versus the small scale are equally important. The questions of operation are equally complex and demand expert attention. The efficiency of the operator lies in that he is able to complete all his jobs within the specified period and at the right time, too. And nothing could be rigid on a farm, for the schedules may have to be revised from time to time, in view of weather changes and other varying factors. Technical, business, physical and economic aspects have all to be attended to. The question of finance, too, is urgent, for borrowings punctuate the business of agriculture: they borrow to buy their farms; secondly, to make them arable; thirdly, to have the needed equipment; fourthly, to grow crops, and lastly, to invest on allied functions. This list, though not exhaustive, indicates the scope of farm credit. The farmer must know when to borrow from whom to do so and at what terms, otherwise his business may become unremunerative. All this means that there is, in fact, functional integration of all management jobs—organisation, operation, marketing, and finance have to be fused into one another. Their proper compounding, alone, would impart cohesion and permanence to the farm business. The fitting together must be in such a manner as to use farm resources most effectively to maximise output, at the lowest costs. Unless integrated, the management function would present a picture of chaos and confusion, to both the farmer and the analyst. In agriculture are prominent the twin functions of supervision and direction, with respect to even the minutest details. Work is heavier on the larger farms, and lighter on the smaller ones. Differences also persist in this regard on the rented and the self-cultivated farms: these are noticed below in details. And last, but not the least, is prospectiveness important for the farmer: the twofold purpose is that he should be able to plan for the future; and secondly, he must conserve his resources, with an eye to the future. Forecasting in the sphere of agriculture is no easy job: hence the difficulty and complexity of prospectiveness in this function. This is made all the more complicated by the possibility of new types of breeds and newer innovations in his techniques. Without being able to keep in the current of change, things may move fast enough to leave him behind the times. It is usually a process of trial and error, and perfection is unattainable for the farm operator, still a correct understanding enables him to work better.

Farm Management:

This study is scientific, though limited to the farm; it is the application of the scientific laws to the conduct of farm activities, and, is, thus quite composite. The subject of farm management, is therefore, derived from Economics, Agriculture, and Agricultural Economics. Other subjects, like Organisation, Management and Accounting, are also invoked, and their conclusions applied. It involves a refresher course in some physical and social sciences. The ultimate goal before the farmer is to maximise his net output and net income, as arising out of the impact of farm operations. This net income is to be viewed from the individual viewpoint, in respect of a certain period of time (usually a year), in regard to the operation of the forces of demand and supply (for with an increased supply this may register a fall), and above all, from the family viewpoint. Another consideration is proper land usage; this is important both from the individual and the social angles. The human objectives of farming, also, need be taken into account: *e.g.* maximisation of welfare, adoption of a course of action, (which might eliminate all waste), the conservation of resources and their best utilization, and provision of a higher standard of living. Suitable and correct availability of food and clothing as also the other accessories of life are to be included in this list of human objectives. Improved housing, sanitation, and medical facilities, and congenial environments are other human objectives. The last objective is social security and insurance, which are conspicuous by their absence in the backward nations. Without human ends of farming, the business may as well become lifeless and monotonous. In this discussion, the importance of the time factor needs to be re-emphasized: it was Dr. Marshall who stressed its role in economic anaysis. In farming, two aspects matter: the business and the personal; and time-calculations are made accordingly. In the case of family farms, for instance, yearly calculations are the rule. But the distant prospective angle is also in view: the present generation must leave to the next generation a better farm than it found. In the case of plantations, the time is about a decade. The national time-span may be even a generation. The other two facets of the problem are the viewpoints of the group and of the individual. Another one focusses attention of the family and the business angles. Incidentally, farm life provides the group with an experience of people working on the farm. Community life is strengthened by the practice of farming, where people have greater opportunities of intimate contact than in industry. A glut of farm produce might depress prices, and this may cause some social injustice, while the increased demand for farmlands may bid up their prices as land is limited in quantity. Hence a discussion of agricultural behaviour has an important bearing on society. The demographic factor, for example, may have to be reckoned with by the social scientist: increase of agricultural population may result in land hunger and increased pressure of population on land. The quality, composition and nature of population, too, may have important social consequences for agriculture in particular and for the society in general. Again, the nature of social customs, and the social background reflect on the farmer's income, efficiency, and agricultural productivity. The point is that farm operations—and hence farm management—is not divorced from the rest of the society.

Management Practices:

Managing different farms—the one-crop, the specialised, the livestock, the diversified and the combined kinds—is specialised work. The specialised farms are to be dealt with later; but suffice it to say here that management of farms is shaped by the type. This approach is scientific—it is theoretical—but in fact management of various farms is influenced by habitual and customary factors. In different farms, various issues arise, which merit treatment. The most elementary types are the *one-crop farms*: soil, climate and nearness to the market account for the high degree of specialisation, though combinations may also be in rotation. These may be one-man, or two-man or family farms, depending on their remunerativeness. Cropping systems may be adopted according to the suitability of the soil, with a view to its conservation and profitability. The index of guidance is price movement over a number of previous years. Check-up budgets may be made from time to time, while the principle of diminishing returns is taken into account. The contour of the land, its receptibility and suitability are taken into consideration, when the operational scale is decided upon. On the *specialised livestock farms*, similar principles apply, though with some modifications. The simplest variant not only sells livestock and its products, but buys all the feed and fodder required, so that the complications arising out of the fitting in of the feed and the livestock are avoided. Some of these farms resemble factories: raw materials, food and cattle are brought to turn out only one final product. The rate of feeding of the cattle, in relation to their milk and meat yield is calculated, as also the nutritive ratio of fodder and the maintenance of the cattle as against their production: this corresponds to the imput-output ratios. Another problem is that of replacements, buying and selecting the cattle are allied issues. These are mostly solved by the trial and error methods. On the *diversified-crop farms*, the sources of income are more than one harvest: supplementary, complementary, competitive and companion crops may be grown. Crops may be combined to avoid over-dependance on one crop, and to utilize, to the fullest, all varieties of soils, equipment and weathers. The *comparative advantage* is measured in terms of gross returns, or net cash returns, or returns on the basis of labour or relative profitability. The *feed-and-livestock farms* do not have to tap outside resources in the matter of finding fodder for the cattle: the guiding principle is that of balancing feeds to the needs of the livestock, and their mutual adjustment. These farms, therefore run complementary operations. Fuller utilisation of various by-products is also possible. Their operations are also more intensive than those of the diversified types. The usual considerations are the rate of feeding, composition of the ration, and pasture management. But the paramount calculations relate to budgeting and financing. The *crop-livestock farms* combine significant amounts of crop production with livestock rearing: major and minor operations are to be judiciously combined. These farms ensure fuller employment to resources, equipment and men, while reducing the various hazards common to other forms. The management problem is that of adjustment between the cattle and the crop enterprises, and fitting them into one another in an economical manner. On the *family farms*, production is usually for the sustenance of the family, and not for the market. The worth of the produce to the family is the main consideration: the calculating peasant must weigh the relative advantages of consuming his produce or marketing it, or producing for the home consumption *and* marketing it. Family farming is mostly "provision" and "food" farming. The *real* and *nominal* incomes are figured out. Calculations are also made with respect to the returns from investments in raising produce (mainly food) for the family: data may be used for this purpose. Transport, storage and weather are the other problems, though these are not within the province of the family farmer.

Special Problems:

Various types of special farms raise special problems, for an intimate and detailed knowledge of the forces operative on these speciality enterprises is required. Most considerations remain identically the same, but some modification is necessary in special cases. In this matter, priorities undergo a change both for the farmer and the planner. Special crops may raise technical problems, arising out of the growing of certain crops, like wheat, cotton, etc. These crops are selected with reference to regional needs while the locational factor also plays its part. Speciality crops vary in their demands for land and soil characteristics. Other factors are equipment, the operator, (his aptitude and training) and institutions and traditions. The principle of choice is applied in the matter of the selection of crops and enterprises. In short, these speciality crops could be successful, if all the various factors cooperate; they raise problems in their growing: the total situation needs be assessed, production adjustments made, their elasticity and adaptability weighed, effects of a particular crop assessed, and also of the land tenures considered. Mechanisation of the operations, and the labour aspects of these crops are taken into account. But in large scale farming, speciality crops may not be preferred. *Irrigation* is a major issue in agriculture. Irrigation facilities may extend to pastures, horticulture, vegetable gardening, diversified and speciality farming. Provision of irrigation may be done by cooperative, state or even private bodies. Water rates present a problem, both to the supplier and the user of these facilities. The access of water is another issue, which is important, while water rights another one. The *riparion doctrine* establishes the right of the landowner to the use of water from the nearby source. In respect of water rates, the twin principles are the *cost of service principle*, and *the value of service principle*, though in the initial stages, states may impose the *betterment levy*, to cover the heavy cost of irrigation projects, or some sort of a compromise formula. The management problem aims at the avoidance of the dangers of over-irrigation. *Horticulture* and *Vegetable gardening* are distinct in the matter of the life-span of the produce and its perishability. Soil and climate are other factors, while the demand for labour is extra-large, and of a special type. Fruit-growing requires a lot of preparatory work, while vegetables farms are mostly subsidiary enterprises: these farms are located in the suburbs, and often undertake processing and canning, too. *Dairy and poultry farming* seems to be the vogue now. Important considerations are the costs of feeding and maintenance, replacements and new purchases, and the yields. Dairying involves long-range investments and planning. The adoption of the new scientific methods is another item for the manager. In *cattle* and *sheep farming*, grazing and feeding problems and costs are to be weighed, in all the various types of these farms, *e.g.* steer ranches and herds etc. Growth rates of the cattle, their grazing, breeding and the risks incidental upon ranching are the main problems: the optimum of organisation and the optimum size of the flock must be aimed at. *Farm woodlands* range from the small woods (supplying timber for family or local purposes) to larger plantations or jungles. Budgeting has to be done in advance: other issues relate to the intensity of silviculture, labour supply, wages and prices. Wild life management poses specialised problems, as also processing, by-products and transport. In short, the main management issues in all these specialised farms refer to: principle of relative advantage, the locale and siting of different farms, budgeting and accounting. But all these should be solved consistent with the resources—environmental, natural, human and monetary—of the peasant, and should aim at their conservation.

Success in Farming:

The ultimate aim of this study is to make the practice of farming more lucrative: hence the importance of the determinants of success in farming. Scientific management of the farms should go far to ensure profitability of their operations. The general agricultural policy of the farmer must accord with the national agricultural policy. Several factors act and interact; these are: physical, technical, economic, and monetary. The input-output ratio must also be kept in view, and the enterprise balanced. There are certain measures of success in agriculture: the gross income, net farm income, net business (farm) gains, labour and management income, and rate of return on the total investment. Two additional measures are the farm family income, and the distribution of the national dividend: these are more important than all the preceding ones, for they figure prominently in farmers' calculations. The *factors of success* are the size of the farm business, its balance, the diversification aspect, crop yields, returns on investments, and other efficiency factors. It is the optimum size, which must be achieved, while farm enterprises are to be combined in such a manner as to balance them in respect of productivity and income; and the indices of crop and cattle yield help to diversify the operations. One must make a distinction between *efficiency* and *capacity*: the former refers to the power to receive and absorb, while the latter to the ratio between input and output: *productivity* is the resultant of the two. The capacity of the management is the index of the efficiency of the enterprise measured by its productivity. In these management studies, efficiency factors are used in terms of crop acres per man, per horse, or per unit of equipment. Other co-efficients are work and output units. But caution must attend the use of the coefficients: they are only the standard and the index of good performance, and must suitably be adapted to the particular circumstances. *Scientific management* in agriculture is practised with a five-fold aim: eliminating the waste, economising human energy, adapting right type of machines, tools and other equipment to the operations, designing the workplace to avoid or minimise strain, and standardising materials and supplies to fit the operation. This means that scientific management is aimed at *work simplification*: and the management is concerned with the operational side of farming. *Work simplification*, though not complete mechanisation, could be introduced in even small scale farming: hence scientific management is possible. Closely related to it, and a part of it, is *farm planning*, which has *two* aspects: the organisational and the lay-out. The first aspect has been discussed at length above, while in respect of the lay-out, it may suffice to observe that the determinants are: soil depreciation from over-cultivation or erosion (the aim is soil conservation), the adoption of machinery, shifts in demand and supply, and the introduction of new techniques and innovations. New investments are made with special reference to the budgetary implications, intensity of culture, and the fertilizer and manure needs of the farms: the expenses and receipts are figured out in farm planning. In this connection, *records*, *surveys* and *accounts* are valuable to the farmer and the enterprise. A *survey* is a collection of the data on any farming subject; *records* may refer to operations, finances, livestock, labour, and specialised performance; and *accounts* may be financial records of farm transactions, *i.e.* cash receipts, expenditure statements, inventory statements, and profit-and-loss accounts.

Critique of Farm Management:

The ground covers a definition of the management function: this is followed by posing its certain issues, while the various aspects of management of farms are next discussed. In this connection, integration and prospectiveness are stressed as being the twin considerations influencing the farmer-manager. Human objectives are regarded important from the social angle. Management of farms is handled next: first the varieties of organisations are studied, and then the specialised problems. The *principle of relative advantage* is applicable to the management of the various farms. For the success of the farming enterprises, various factors are responsible: capacity, efficiency and productivity are distinguished in this context; other factors are planning, maintaining of records and accounts, and the conducting of surveys. In brief, it may be stated that the subject of farm management is fairly wide, and though of intimate concern to the peasant and the operational-manager, its conclusions are of relevance to agricultural economy.

THE LOCATION OF AGRICULTURE:

The implied assumption, in the foregoing, has been that the farm is well-situated, especially in respect of its economic aspects. It is pertinent, therefore, to examine the forces underlying location of agriculture. It is possible that the pattern of agriculture may not accord to the economic ideal, for the evolutionary forces may have registered a change, while the mores of farming may not have. Evidently, the farm that fits in with the economics of situation would tend towards the optimum. Hence, in this section are outlined the determinants of location, which are preceded by a statement of the more important theories of location. Observations on selecting a farm and the valuation of farm property—both of which are interlinked with the economics of location—are also pertinent to this study: and the section is rounded off with a few remarks on both these. The reader is for the first time initiated into the analytical discussion, for this is a necessary pre-requisite for the appreciation of the argument to follow later. It may, however, be observed here that agriculture is more susceptible to changes in the environment than other economic activities: hence the economics of location has a greater relevance to it than to other industries; also its location is more rigid and static than that of others: this, also, makes the importance of this issue more glaring than it is in the case of the other activities. It is the law of diminishing returns that operates in farming; to neutralize this trend, it is imperative that the system of farming reaps the fullest benefits of its environs.

Industry and Agriculture:

From the location viewpoint, industry and commerce are at an advantage, but agriculture is not so fortunately situated. Man's control over natural hazards is still very limited; hence agriculture is even in its present stage of evolution, largely a function of locational economics. Industrial and factory organisation is more elastic, but agricultural organisation is not. And, agriculture needs much more land—a rigid factor, both in supply and location—than manufacturing does. Wrong and misguided choice of agrarian location does have repercussions on other pursuits; hence this problem is basic, and the choice herein requires more caution. In this connection, a distinction must needs be made between *location* and *localisation;* the former refers to the geographical situation and the latter to concentration of economic activity of one type at a place, or a grouping of industries. Localisation arises out of efforts to reap external economies, while location is due to causes natural, and economic. Recently, however, the trend is towards delocalisation, for this is rendered possible by the cheap transmission of electric power over long distances, and other innovations in the realm of industry. Localisation, in this sense, could not be very pertinent in agriculture, for the clustering of farms within a certain area would be impossible. For all practical purposes, location and localisation would not be very different in their implications, in so far as agriculture goes. Even dispersed hamlets and farms (*e.g.* scattered farming) could be said to have the same location. As pointed out above, dispersion and the growth of technique have neutralised the erstwhile advantages of localisation. The location of modern industry is determined to a very great extent, by the twin factors of technique and defence; the latter being prominent. Agriculture, in particular, responds more actively to strategic needs that it does to technique, which is slow to affect it: defence needs of the nation may influence the peasant very effectively (he may adapt his farming system accordingly), while he is tardy to utilise a newer innovation. Even scientific management, as pointed out above, has its limitations in actual practice. Industry is being attacked vigorously by the twin trends of decentralisation and dispersal: delocalisation (or dispersal) is encouraged to bring about greater employment of resources (including manpower), while decentralisation is considered essential to combat the evils of private ownership and monopolies. In nearly all countries, agriculture is also being decentralised, and the bigger estates being broken up, while it is also being dispersed to utilise more fully, the varied soils and environs in the country. Incidentally, both these trends result in balanced location; and this is now the recognised aim of an agrarian economy. By "balanced location" is implied that the farms be so situated as would balance the economy: and this could be the aim of agricultural policy. Modifications in the locational situation of industry are easier to secure, but not so in the case of farming, for reasons obvious. In the matter of new agricultural lands, only, it is possible to secure optimum and balanced location of the agricultural activities.

Theory of Location:

Theoretical framework has been based mostly on the location of industry: the bias of economic thinking is industrial and commercial and not agricultural, for this discipline has been developed in the industrialised nations. A great exponent is Alfred Weber, whose explanation is regarded as plausible. His approach to the problem is in terms of the variations of costs, caused by regional differences. The two sets of costs relate to *labour* and *transport*: an industry is located where transport costs are at the minimum, as this gives it an advantage over others. Transport costs have to be weighed in terms of weight and distance. The place at which an industry tends to be established has advantages in respect of the *transformation process* (the process of their manufacture) of raw materials, that have been divided into two categories for this purpose: the *localised materials* (confined to a particular region) and the ubiquities (which are found everywhere). Only the localised materials have influence on location, for these may not be available everywhere. Location is effected by the transformation process—some raw materials lose weight in the process, but others may not: the former would be located near the source, but not the latter. On the basis of these twin factors, the level of minimum transport costs would determine industrial location: deviations from this may be due to labour costs or external economies. But this theory is criticised on the ground that it is unrealistic calculating transport costs in terms of weight and distance alone: they vary also to the nature of the transport system. Weber's theory is inapplicable to agriculture, except to the processing part of it. According to *Andraes Predohl*, location is a function of the *law of substitution*: every change in the location of industry involves a change in the combination of productive factors. This theory offers to explain the shifts in industrial location, but fails to account for new location. *Adam Smith* regards location as due to the division of labour: optimum distribution of industry, as between different regions takes place according to division of labour. Implicitly, this theory assumes the doctrine of comparative costs, as applied to industrial location. This explanation is however static and inapplicable to the present dynamic conditions. Too much adherence to the doctrine of *laissez-faire* also makes the theory untenable in modern economy. *Von Thunen*, in his book, *The Ideal State*, was the first to expound the theory of agricultural location: his analysis is more pointedly directed to explaining location with respect to markets. His assumptions are that soil and climate are uniform, all transport is by means of wagons plying on the same quality of roads, and that uncultivated waste separates the city from the outside. Under these assumptions, he contends that the types of farming tend to be distributed in such a manner as may establish an inverse relationship between the cost of transportation of the crop (per acre) and the distance from the city of the land under that crop: the longer the distance, the higher the price and costlier the crop. Concentric circles could be imagined as drawn round the city (theoretically) about which various crops are grown. Bulky and perishable crops would be grown in the suburbs, *e.g.* vegetables. Von Thunen's theory applies to farming but in a general way, for he does not take into account the fact that transport may as well influence location. In a broad manner the factors that influence location could be classed as physical, biological and economic: it is the comparative advantage in respect of all these that settle location, in agriculture. In addition, there is the *agricultural inertia*, which is also responsible for the location of farms, even when the original economic and other factors have ceased operating. The *modern theory* is couched in terms of the *optimum allocation of resources*: but this is from the individual's point of view, unless there is regimentation. Still, the relative character of dynamic factors is recognised. Transport, processing, and technique have made resources mostly *ubiquitous*, this is why dispersed location is now possible. Optimum allocation of resources leads to welfare, by equating *social marginal net product*. This theory takes stock of the dynamism of technique, strategy, state policy, and secures maximum welfare. But it points more to locational planning, rather than to actual location—locational planning is brought about in such a manner as to equalise *net social marginal products*, in different regions, from all viewpoints. It is, in soothe, a function of the state to undertake locational planning and settle priorities in this respect: this would hold true of agriculture, too. These premises do apply to agriculture, but with modifications: planning of agricultural location may be difficult except in case of new lands, which could be brought under the plough in accord with their natural properties. In the agricultural sector, it is difficult to be able to equate the *net marginal social product*, for agricultural location may have been determined by inertia and other static factors, no longer operative. Only indirectly could some sort of locational planning be achieved; it is well nigh impossible.

Determinants of Agricultural Location:

After a discussion of the theories of location, it is suitable to settle the determinants of agricultural location. It may be stated at the outset that natural, geographical, biological, cultural and above all, institutional factors would modify this analysis, for they rule supreme in agriculture. In farming location is not decided upon by the comparative advantages only but also by the relative advantages: goods tend to be produced where the ratio of their total advantages, as compared to other regions is higher, or the total disadvantages, lower. Relative and comparative advantages, together, therefore determine location of farms and their produce. This calculation is a two-way comparison. Relative advantages are with regard to the relative merits and demerits of different crops, enterprises or operations, in respect of suitability, while the comparative advantages are in regard to various regions. Another determinant of agricultural location is *economic profile*—Russian economists' contribution to locational economics—according to which an ideal production centre may be one from where concentric circles be drawn outward, according to variations in costs and prices. In the centre, prices would correspond to those determined by the interplay of forces of locational equilibrium. With the expansion of economic activity, industries (and agricultural production) begin to be located in the outer circles: only products with the highest margin of profits are located in the outermost zones. In this manner, location is determined by the economic profile for the region. Thirdly, *geographical pattern* is determinant: farm prices decline outward from markets and centres of demand and disposal: hence costs may also tend to decline in regions away from markets. In mature economies, or where the pressure of population is not heavy, farming tends to be labour-intensive near the markets (cities) and capital-intensive away from them, but in backward economies (with heavy pressures of population), farming remains to be labour intensive. From the geographical angle, therefore, there is a set pattern of costs, effecting location in agriculture. Probably, the process of agricultural dynamism is much slower than its economic counterpart. *Inter-regional competition* is another factor determining the location of agriculture. Different regions supplying the same goods are competitive: the quantity consumed is apportioned among these, according to advantages, accruing to the products there. This is a variant of the general equilibrium analysis: international competition is reflected in the location of crops and enterprises. Sometimes qualitative aspects persist in the same place: *e.g.* Nagpur oranges. This stresses the fact that demand is an active determinant of the location of agriculture, especially in respect of commercial crops. In sum, the question of agricultural location is quite complicated. Locale is decided upon by comparative and relative advantages, economic profile, and the facts of geography, and considerably shaped by inter-regional competition. But this analysis is only light-bearing, and has unravelled the main trends, while miscellaneous other forces of non-economic character operate with equal intensity.

Selecting a Farm:

The problem of location remains only partially solved, without reference to the question of selecting a farm. The farmer has to make this decision, for optium production is not possible without its correctness. In this connection, a description of the real estate market should preface the unfolding of the main issues. The real estate farm market in not perfect: farms are, therefore, sold at prices, higher or lower, than the "correct" prices: account is taken of differences in productivity, situation, location, natural endowments and residential advantages. The excluded categories of buyers (who do not want to buy) too, influence the prices of farms. Personal factors have. also, to be considered. A farm is usually selected in a region, which farmers know best. Before selecting a farm, they decide upon the scale of operations, for that would determine location. In a certain locale, the scale may have to be small. "Other opportunities" are to be assessed: irrigation facilities, drainage measures, and flood control projects. Certain lands in certain regions may be specific types, admitting of specific crops. Hence regional variations count for much. *Natural factors* are topography, soil and climate; good management could make up for these differences, but not completely. But climate is unalterable, as also unconquerable. In respect of farm selection, *social impact* is equally significant: siting near towns, or industries, or residential buildings, has its repercussions on farm selection. The demographic structure, social prospectiveness, and background, are of paramount importance to the peasant in deciding upon his selection. In the last instance, the twin factors of *rents* and *prices*, are in the context of this economic survey, the most significant. Prices must be within the means of the peasant who should not incur debts for his purchase. To arrive at correct price, he should compare the prices with those of other farms, and estimate and capitalise on the basis of net farm income. Another process would be to calculate on the basis of net income (from the farm operations) on that plot. Still another method is to compute the landlord's net assets, according to the share-holding system. But it is pertinent to point out that rent payment is often customary, and therefore, may not provide the correct basis for calculating the farm prices.

Valuation of Farm Property:

Closely allied to the above problem is that of the valuation of farm property. Valuation is a rather complex procedure and may require expert calculations. Farm property is valued in opening and closing inventories and estimating changes in their net worth. In settling the estates, farm property needs to be evaluated. Generally, professional valuers are employed in order to perfect legislation. Problems do arise whenever cost accounting is taken up. The purpose of valuation is to equate its use to price paid, *Market value* is what is payable under conditions of competition: *loan value* is for the purpose of mortgage; *assessed value* is reckoned from the purely property viewpoint; and is used in taxation; *insured value* is calculated from the purely insurance angle while *customary value* is one established by custom. With constant flow of income, the process of evaluation is simple. It is based on the expected net income, which may be capitalised on the current rate of interest. True or real value is based on the earning power of land. Capitalising on the basis of a lower rate of interest would inflate its value. Calculations may be made either by discountnig the present worth of land, computing on the basis of a premium on the original land values and allowing for improvements. The actual price depends upon the demand for the produce, raised on land and corresponds to the expectations of the farming communities. Land prices may vary as a result of changing expectations, which play an important role, more significant than actual conditions. In real appraisal, reliance is placed on the judgment of those familiar with conditions obtaining on the real estate farm market. Still some factors could not be reduced to statistical measurement: *e.g.* residential values, as distinct from production values. Hence, no procedure, however refined, could give the true value. Normal value is the price that an average producer is willing to pay. Valuation is different for different purposes. Applying these principles to special classes of farm property, it is patent that the problem is to determine at which stage of growth the orchard is, for its income varies with growth; similarly, in the case of livestock, an allied procedure is adopted. Present prices may affect the future ones, and also their trends. The prices of business farms would be higher than those of others. But usually, the capitalised value of the land is taken. In certain cases, the rate of depreciation is noticed, while in others the rates of replacement, reconstruction and growth are regarded as the main factors to be taken into consideration.

Agriculture and Locale:

The scope of this section has been extensive: the problems of agricultural location, selection of farms, and valuation of farm property have been discussed threadbare. Distinctions between location and localisation obtain, as a natural corollary to the distinctive traits of agriculture: the former refers to geographical situation, while the latter to grouping of economic activities. In this connection, the trends towards dispersal (or delocalisation) and decentralisation are noticed as having their effect in agriculture, which, however, is influenced more by defence and strategic needs than those of technical advancements. In the theories of location, those expounded by Alfred Weber, Adam Smith and Von Thunen are noteworthy: the one given by the last master is regarded as the most applicable. In the light of the modern theory of locational balance, are enunciated the main principles of locational planning. The implications of the *social net marginal product* in the agricultural sector are explained: this is the welfare aspect of locational economics. In the various determinants of agricultural location, prominence attaches to relative and comparative advantages, the economic profile of the country, the zoning out of agricultural production accordingly, the cost structure in the geographical patterns, and the inter-regional competition *vis-a-vis* the factor of demand. Agricultural location is the resultant of various factors. The issues emanating from the selection of farms relate to economic and financial factors in respect of different types, regional differences, natural and social factors and rents and prices. An enquiry into evaluation of farmlands is pertinent in this analysis: outline discussions bear upon the problems of evaluation and pricing, appraisal and assessment (of land and farm property), and the application of these principles to special classes.

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SUMMARY AND CONCLUSIONS:

The scope of this chapter has been comprehensive: all the environmental aspects have been dealt with—farm management, village organisation and location of agriculture. In the first section—village organisation—it is established that the village structure has a bearing on the farming system. The rural structure, the village types, their correlation with the farming systems, rural characteristics, the changing village and rural dynamism are also dealt with in detailed fashion. Rural organisation is more plastic than farming systems, but the correlation between the two is rather remote, and indirect: different factors have been operating in the two spheres: farming systems owe their origin to natural and social considerations, while village organisation is the product of multiple forces, acting and reacting on each other, these may be evolutionary, socio-biological, cultural, historical or economic. It is not possible to generalise because of the operation of various changes that have taken place and are still in operation. Village living is distinct from urban life, which however is affecting the former though that is characterised by nearness to nature and the hazards of farming, and is the resultant of complex farming and allied chores. With the disintegration of the village community, the village is in a process of transition, and rural life in a changing mould. But certain it is that the march of time could not be stopped, nor progress stemmed; the only thing which remains to be decided is how best to canalise it. Modern outlook needs to be recognised and given an impetus in the progressive channels, instead of being retarded. Rural dynamism has become an established fact and needs to be recognised as such: the rural structure is experiencing new patterns, which should be appreciated. Variations as between regions do persist: they should be recognised and the popular efforts canalised accordingly. The villagers have reserves of energy, which could find healthy outlets, especially because farming is a part-time pursuit leaving sufficient time for other avocations. Rural dynamism has, therefore, a newer meaning and significance, from the theoretical and the practical viewpoints. Regarding farm management, it may be stated that this subject is important for progressive farming. The principles of pure economics are applied to the farms: the most important is that of relative advantage. Enterprises are combined to ensure stability to income; but this requires greater awareness of the principles of farm management than is possessed by the average peasant. Farm management functions are indistinguishably integrated. The farmer has to look ahead and with a wide range. Though all the ends of farming may not be realised, the important ones can be achieved. A judicious selection of enterprises and their judicious combination must be promoted; in this connection, the time factor needs be recognised, and given due weight. But caution should be exercised in the application of the principles of farm management as enunciated in this chapter: they have to be grasped well, then modified and applied to particular cases. In respect of agricultural location, it may be stated that the problem is rather complicated. Von Thunen attempted to give a theoretical explanation of the same, but he failed in this task, for no single factor could be isolated to explain this phenomenon. Hence, several determinants of location are given above. The fact is that the factors responsible for locating agricultural enterprises work themselves out and then disappear, while these undertakings persist in the same place because of agricultural inertia. Agriculture always lags behind economic forces. Institutional factors, (and traditional ones, too) play an important role in locating agriculture, which may be pursued out of habit and custom. In the selection of a farm, it may be said, that the shifts in the matter of ownership and tenancy are infrequent; farmers love their holdings, they have been cultivating: it is the new farmer who is to make a selection. Still it is instructive to assess various factors operating therein. Closely connected to this, is the sub-

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ject of valuation of farm property: the guiding principle in evaluating farms and allied property is the capitalisation of expected incomes therefrom; this is similar to evaluating other property. Noticeable is the fact that farmlands are a distinct form of property as they are characteristic in point of situation, productivity and scarcity: hence, this principle of evaluation must be applied with modification, especially to the different categories.

Focus on Organisation:

The organisation of agriculture is a pre-requisite to the understanding of the more analytical problems. From the organisational angle, it is rural dynamism that is significant: it has assumed a newer meaning: what is the trend of this dynamism is in a particular society? What role is this movement going to play in the spheres of agriculture in particular and national economy in general? And what good could be secured out of this dynamic evolution of the village communities? These are the questions that need be answered before the villager could be expected to cooperate wholeheartedly in the task of national regeneration and economic planning. Farm management, though a distinct subject of study, is yet intimately related to the organisation of agriculture: farm is considered as a business unit, though it is not precisely so. The firm may undergo frequent changes, while the farm may not; the one test of development, and growth is the impact on income, the most important end in farming. Farm management must be consistent with the ends of farming, its organisation and economy. By itself, it has little utility: hence it must be studied in the wider organisational perspective. In the locational problems, too, the organisational viewpoint is quite significant. The theoretical explanations of location are helpful in organising farms in a better manner, while the determinants of agricultural location point to the limits to which the policy-maker and the planner could go. Selection of farms would assist him in rehabilitation of newly reclaimed lands, while the valuation of farm property guide him to achieve rationalisation of land prices, and wise intervention in the real estate farm market, if necessary. In this chapter, therefore, the organisational viewpoint has dominated the discussion, which serves as an introduction to the more intricate problems of the role of nature in farm production—the subject matter of the next chapter.

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SELECT EXERCISES AND QUESTIONS:

1. Correlate the village organisation to the various farming systems. How far is this correlation precise? What is the advantage of this study to the planner?
2. Describe the various village types, with examples from the Indian scene.
3. Assess the importance of transition in the village. Bring out the import of the changing village, and critically estimate the process of rural dynamism.
4. What do you understand by "Farm Management"? What do you study under this heading? What relation does this study bear to Agricultural Economics?
5. Discuss the general principles of Farm Management, giving Indian examples.
6. Apply the basic principles of Farm Management to specialised farms.
7. Critically examine the various factors responsible for success in farming. In this context, distinguish between capacity, efficiency and productivity on farms.
8. Give a brief survey of theories of agricultural location. What are the main determinants of location of farms? How would you reconcile the different apparatuses of analysis.
9. Enumerate the considerations, you would bear in mind in selecting a farm.
10. Survey, in brief, the factors that are taken into account in evaluating farms.

CHAPTER IV

PRODUCTION AND NATURE

Production on the Farm—Production and Output: What to Produce: Prospective and Present Output: Adjusting Farm Production: Agents of Production: Farm Production. The Natural Resources—Natural Resources and Land: Functions and Characteristics: The Economic Aspect: Diminishing Returns: Land Management: Natural Resources and Factors: The Role of Nature. Economics of Land Usage—Acquiring Land: Land Usage: Problems of Usage: Land under Cultivation: Public and Private Uses: Urban and Rural Uses: Usage of Land. Summary and Conclusions—Nature in Agricultural Production. Select Questions and Exercises.

AGRICULTURAL Economics is very intimately concerned with production aspects of agriculture; it is pertinent, therefore, to probe into the nature, and the problems of production: these three chapters are to be devoted to the various issues of agricultural production. The present chapter, however, is confined to the general problems, with special reference to the role that Nature (including Land) plays in this process. Initiating this discussion with the general features of production on the farm, the argument proceeds to unravel the problems of natural resources, with special reference to the economics of land usage. While the first section is mainly descriptive, the last is analytical in methodology. Throughout the discussion, the social angle has been kept in view, for agricultural production is to raise the consumption levels of the society. Though the main stress is on augmenting production, the conservation of limited natural resources, especially land, is also of paramount importance: in this context the problems of land usage assume special significance, and have to be critically examined and solved.

PRODUCTION ON THE FARM:

The nature of agricultural production and its significance from the analytical viewpoint, as also its complexity have been brought out above in the survey of farming systems and management problems. Mostly, this production is highly diversified, and therefore, the problems arising out of it, variegated. Even on the so-called single-crop farms, production is not strictly confined to the growing of one crop, but of other allied ones, for it is not wise to waste away the by-products of even a single crop; there may be more than one operation and in certain cases, more than one enterprise. Hence, the issues of agricultural production deserve focussed attention. This section will distinguish between production and output—terms that baffle the layman and the student—and then introduce the reader to the question of selecting production (if possible), of adjusting it to external factors, and wind up with an enumeration of the well known agents of production. An inference is drawn at the conclusion of this section, to enable the reader to form a consolidated idea of the argument.

Production and Output:

Production may be defined as the activities which result in goods and services. But all pursuits are not productive in that some of them may be wasteful, or these may not be as fruitful as certain others are. Production, should therefore, be directed at eliminating the inefficient and the wasteful activities. *Production* refers to the total of all goods and services, from a certain unit, while *output* may have reference to goods alone, or *concrete production*. While production may be difficult to estimate, due to several (invisibe) services, it is easier to gauge output, hence the use of this latter term, in preference to the former. Mainly agricultural output falls into two groups: consumers' and producers' goods. But this classification is neither exhaustive, nor very scientific, for it is difficult to distinguish between the two. Still, most agricultural products belong to the category of consumers' goods, while some of the other produce is processed for the use of the consumers, for goods are not consumed in the form in which they are raised on the farm. In the third category are those goods which serve as raw materials for producers: flax, hamp etc. In the fourth group are commodities, that are used for agricultural production: *e.g.* green manures, Agricultural output should be classed into *agricultural, livestock* and *horticultural* products; these would cover crop produce, animal products and fruits and nuts respectively. Another class would include forest produce, while an additional one would classify fish products distinctly. Hence agricultural output could have five categories: agricultural, livestock, horticultural, forest and fish produce. The measurement of output is a difficult task: physical measurement may be deceptive, due the different values of different products, while labour standards of value are notoriously inexact, even in the Marxian sense. Usually, the method of computing value in the money units is adopted: the money values of all output are added to calculate *gross output;* to find the *true* gross output, allowance is made for the changes in prices. Values are computed for a single year, and index numbers are employed to make the comparisons. The only difficulty is that of avoiding double counting, which may not be so pronounced in the early stages of production. The cost of the seed has to be deducted, while that of straw not to be added to that of the crop. *Equipment* is a durable factor, and could not be included in gross output; only its use value may be: its wear and tear has to be allowed. Allowance should also be made for the stock in hand. *Net output*—a concept most commonly used—is arrived at by deducting from the value of gross output, the cost of the purchased material, not produced on the farms, but used in producing goods sold to the non-farming community. This means that the value of the imported goods is deducted. This gives the peasant an estimate of the utility of his business, and remunerativeness of his enterprise. On the national scale, the calculation informs about the extent to which agricultural output is wholly produced from national sources: how far the economy is self-sufficient in agriculture. Looked at from another viewpoint, the concept indicates the extent to which farming is a "processing" industry, dependent upon external resources. And above all, it represents the net income from agriculture from year to year. In other words, it is a fund of wages, profits, and interest; out of this taxes may be paid. In short, the net output (net income) is a function of the twin forces of efficiency and price level. Hence this concept is significant from the individual farmer's angle, and agricultural and national ones.

What to Produce:

The sphere of farm production is not unlimited. The farmer has to reconcile the communal and the personal interests, the present and the prospective considerations, and attain maximum long-run productivity, avoiding shortages and surpluses. From the peasant's view, the guiding principle for his enterprise is to reap the largest profit: this is true of capitalistic production, and is not peculiar to farming alone. The question is whether the national interests are best served by serving the individual ends, for conflicts may arise. The peasant's actions must be so guided that the highest social priorities are achieved. But this "simple" principle has conflicting interpretations in practical application. One thing is undisputed: the goal of agricultural production is to achieve maximum social well-being. Human welfare being an accepted article of faith, social preferences are expressive of the intensity of these preferences. In the light of this, the maximising of agricultural production should be the goal before the peasant. Still, it is necessary to reconcile the individual and the communal viewpoints. In the first instance, labour and capital should be properly allocated among different industries so that the factors of production are equally socially productive everywhere. Equitable distribution of the productive resources would help resolve these conflicts, which arise out of the choice of crops, intensity of cultivation, conservation of land and welfare of certain classes. A conflict may also persist as between the present and the prospective production: the individual may only think of the present, while the national interest may stress that the prospective needs be kept foremost, though in a national emergency, the present production is of the greatest import. Again, when shortages continue, it may be profitable, from the individual point of view to retain stocks, but this may not be so in the wider interests. Generally speaking, the peasant must so plan his production, that he does not exhaust his soil quite. *Maximum long-run productivity* must be maintained: from the national angle, this is of paramount importance, and the guiding principle of farm production policy. National economic self-sufficiency, if stretched to the extreme, can mean producing bare necessaries of life, to the exclusion of all the other things so necessary to keep production at the same pitch. A blind pursuit of this policy of self-sufficiency would be possible only in an economy with unlimited resources—an impossibility. Therefore, the policy that could suit would be that of achieving maximum long-run productivity: this could be the one objective of agricultural policy. Since the primary necessaries of life are supplied by agriculture, which also feeds industry with the basic raw materials, it is imperative that these supplies may continue uninterrupted for all time to come: this means that only the policy of long-run (maximum) productivity would be advisable to pursue, for it serves the prospective angle as well as the present one. Production policy should also take note of shortages and surpluses. Production policy should avoid both these. A surplus—which is not disposed off at "fair price"—is fought out by giving information much in advance of the sowing season, and by providing storage facilities. Shortages, which are marked by soaring prices, are more difficult to neutralise: supplies could be equitably distributed, and measures adopted to dig out underground stocks, while information services could also promptly act in advance to the same end. It may, however, be pointed out that some commodities could be produced only in limited quantities, due to the rigidities of soil and climate. Certain produce could be raised only under specific conditions. In these cases, it would be wise to weigh the cost of producing these at home and that of importing them from abroad: that course of action should be adopted wherein the comparative advantage lies. The best policy would be to aim at that assortment of goods that the national resources could profitably produce. Whenever required, agricultural production should be supplemented with the necessary growings, so as to assure long-run productivity.

Adjusting Farm Production:

Methods are designed to adjust farm output to the changing pattern of the economy. All the various subjects of change would be dealt with in the CHAPTER IX, STABILITY AND FINANCE; it may, however, be said here that that the changes would either be internal (in technique or in tillage), or they may be external (beyond the control of the peasant, and outside agriculture). An important (external) change is in the market conditions, to which the peasant is required to make an adjustment. This becomes more perplexing for the peasant, if it is noticed that agricultural production finds it difficult to respond to the price factor, and therefore, to market conditions, for its supply is rather rigid. The first step is to grasp the fundamentals of the *theory of adjustment*, which works to establish an equilibrium in demand and supply. *Assumptions* are good knowledge on the part of both farmers and dealers and freeplay of the forces of competition. In the event of falling prices, production would shrink, but if supplies are curtailed: prices again rise back to the normal. Similarly, a surplus is neutralised by prices falling and (supplies being withheld) demand extending. All this appears to be automatic, but in actual practice, it is not so, for some complicating forces upset these calculations: there is the time-lag in the working out of these responses, agricultural supplies are rather inelastic, the demand for agricultural commodities is also rigid. Self-adjustment is therefore only theoretical. And then the perfect market, on which this analysis rests, is just an illusory assumption. This means that adjustments in agriculture are not easy to achieve, nor is the farmer so capable and efficient as to be able to make the adjustment, to the changing market conditions. Agricultural costs and supplies are inelastic, hence, they are not readily adjustable to a changing situation; also the cost of storaging agricultural produce is rather high as these goods are usually perishable. In case, agriculture has registered an expansion, it is so difficult to contract it; and once shrunk, it is not easy to expand it. Again, farmers do not act rationally: their actions are inspired by their traditional mores of living; even if they did they would be guided by the prices ruling in the past: on this their expectations are built for they are, often, not well-informed about correct forecasts of the future trends of production and prices. Of course, certain products may be more manageable than others, and could be adjusted, but they are few and far between. Farmers may be able to adjust, if guided by experts. The methods of adjustment are dependent upon the farmer's awareness of the trends of market prices. Again, they could be more successful if they planned enterprises more scientifically: this planning should be not only quantitative but also qualitative.

in its approach. And the price-cost calculations must be prospective—a rather hazardous task. This means vigilance and control. The practical possibility is that programmes can be altered only at intervals of two or three years, and not yearly. For correctness of judgment, records must be kept, data maintained and then expert interpretation and advice sought. The test is twofold; how far the intended adjustment is going to be in accord with market and economic trends, and *secondly*, how far the alternative proposed is remunerative. In these matters the peasant could be advised by expert agencies, including the State, which could hold out guarantees. As to adjustments in various types of farms, it may be advisable to notice some important ones: in the highly specialised one-crop enterprises, the process of adjustment is the slowest, for it is difficult to make variations in this cultivation, though a part of it could be left unharvested, or less intensive methods of cultivations followed. *Culling* is another alternative. On the *general* farms, opportunities for adjustment are available. If long-term and permanent changes are anticipated, the farmer may make larger adjustments on the basis of unusual circumstances. The bigger farmers could make changes more effectively than the smaller ones. With persistent technical changes, the levelling of seasonal production may be possible. Adjustments could be either *local* or *special*: the former obtain when production is for local needs, (*e.g.* the village, or the suburbs), and the latter when the produce is of a special type, or is raised by special methods. In these cases, the first step is to secure the necessary facts about consumption, supply and price trends, and then act. Incidentally, greater attention is often paid to the development of special markets by cooperative endeavour, or marketing the surplus produce even by mail order system. In sum, making farm adjustments, is a tardy and slow procedure.

Agents of Production:

Production is a combined effort; it is difficult to group satisfactorily, these factors of production: the customary classification is followed for reasons of simplicity of analysis. It may be pointed out that the traditional categorisation holds good only in theory, for in actual practice, it is difficult to isolate a certain agent of production. A distinction needs be drawn between the two terms: *factors* and *agents*: the former refer to each of the implements of production as a separate entity, while the latter convey the idea of a group of several productive entities belonging (functionally) to the same genus. From the analytical viewpoint, it is the agents that are important, while from the practical angle, it is the factors that play the effective roles. The functional viewpoint dominates this study. It is customary to enumerate the agents, as Land, Labour, Capital and Enterprise: a certain productive factor may be a combination of one or all of them. Certain factors may be *specific*, or *non-specific* i.e. specialised or otherwise. In fact, all factors are mixed, and not specific, except the highly specialised machines. Factors may be *homogenous* or *diverse*: they may possess the same qualities or not. They may also be *divisible* or *indivisible*: the former could admit of adjustments on the margin, while the latter could not be so treated. *Land* embraces all natural factors including land, farms and fields; while *labour* is work done for payment: in this work done by the family members, (offered free), could not be included. *Capital* covers all those factors that assist the productive effort: these comprise the equipment and the produced factors. *Enterprise* is the job of bearing risks, and uncertainties; it is sometimes distinguished from *organisation*, which refers only to management. *Land* is the only natural agents of production, while *labour* and *enterprise* are human agents. They could also be classed as *produced* (the capital goods), and the *non-produced* (all other agents) ones. Another classifications is to categorise them as *primary* (land and labour) or *elementary* and the *secondary* (capital and enterprise). Agents are sometimes combined in *fixed*, or in *variable proportions*: in the case of land, which is fixed in supply, other factors have to be varied to bring about optimum production. By *optimum production* is meant maximum production under the circumstances. Usually, the essential factors are scarce, hence in productive combinations, they are economised, while the quantities of others are adjusted to them. To achieve maximum productivity, they must be combined in correct proportions, so that the *optimum* level is reached. The productivity of one factor depends upon that of the others, and the nature of productive combinations: this is the integration aspect. There may also be inter-substitution in the factors of production, though it is not possible that this substitution process may be perfect. These points have been made lest it be thought that any one factors could improve its efficiency in isolation. But more of this discussion in CHAPTER VI, THE PRODUCTION EFFORT, below.

Farm Production :

At first, have been made, above, distinctions between outupt and production, followed by unfolding the nature of agricultural output: the term "production", though more common is unable to convey the correct scientific meaning. The initial problem is of selecting production (what to produce?): in this matter, it is the prospective instead of the present viewpoint that dominates the farmer's choices, though the farmer, ignorant as he is, usually serves his present needs. The *law of maximum long-run productivity* is next enunciated: agricultural production should be the maximum, keeping in view, the long run prospective viewpoint. Critical examination reveals that this principle finds universal acceptance with farmers, and is also encouraged by wise administrations. This law is examined in the light of the *shortages*, and *surpluses* in agricultural commodities: in farm production, the *time lag* is rather pronounced. In this context, the *limitations* and conditions peculiar to agricultural production are noticed. Next is tackled the problem of adjustment, as it works itself out on farm production: adjustment is required to be made to the changing market conditions. The methods of adjustment are interesting: they have to be varied to suit farm types, while local and special production calls for adjustments to be made accordingly. Lastly, a distinction is made between *agents* and *factors* of production: the former refer to the separate entities, while the latter to their functions. It is also noticed how the factors of production act in concert, their mutual productivity is raised only then.

THE NATURAL RESOURCES:

Usually, the farm worker himself performs the twin functions of the labourer and the entrepreneur, hence he is both a labourer and an entrepreneur. This means that there are, in fact, three agents of production: land, labour and capital (equipment) Land or the natural factors come first; without them agricultural production is well nigh impossible even to initiate. In agriculture, land and natural resources far outweigh the other agents of production: while land could be improved, there is hardly any method of modifying the natural resources. The analytical meaning of land and resources of nature is explained, this is to be followed by details of their characteristics and functions. Stress on the economic aspects will be laid, while a detailed account of the law of diminishing returns is given. Land management claims a separate paragraph, while this section is to be rounded off with the role of the natural resources and factors in farming.

Natural Resources and Land:

A slight distinction may be made between *natural resources* and *land*: the former include all that Nature bestows on the peasant, while land is only the farm (or the space) under cultivation. Broadly speaking, a plot of land has inherent in it the natural resources, particular to that region; still, there are certain other natural resources, that are not so intimately connected with the plot of land *e.g.* the slope of the land, and the direction of the winds. It may, however, be inadvisable to treat these as distinct agents of production, for the clarity of this argument. *Land* means not only the farm or the plot, but also the properties associated with it: sunlight, climate, etc. Much of the *land* today is capital-invested, and as such should not be regarded as *land* but also as capital: for it is man-made. Still, the fact remains that the man-made properties also behave like the natural ones: Man only reinforces the endowments of Nature. Hence, land could not be regarded as of the same species as capital, even when it is capital-invested. The two important aspects of land are its fertility and location. Fertility is an over-all term and covers retention of moisture, and soil structure etc. Location informs us about the situation and environment of land. While less fertile regions could be made more fertile, the badly located ones could hardly be improved upon, except by good means of transport and communications. But natural advantages of inherent fertility and suitable location figure out as economic assets. Other natural factors are topography, climate, slope of the land, and soil structure. These are not directly associated with land, being not inherent in it. Altitude, distance from the sea, and the landscape are also gifts of Nature, which play an important part in agricultural production. Land is made fitter for cultivation, by proper drainage or irrigation or both. In fact, natural deficiencies are made good by these two methods. Natural resources and factors are quite important in agricultural production everywhere.

Functions and Characteristics:

Land and natural resources must function efficiently to promote production; hence this study of their characteristics. Land could be economised with intensive operations, but only to a limited extent; it is impossible to grow all the produce on a single plot. Natural resources play a decisive role in agricultural production; in unsympathetic natural environs, certain crops could not thrive. It may be said that the interplay of natural forces determines the very complexion of agriculture. In fact, the occupational set-up of Man is largely influenced by natural resources. This is especially true of the backward and under-developed economies of the world. Land has some distinctive characteristics; it is thoroughly subject to the law of diminishing returns, it is scarce in quantity, but hetrogenous in quality. While a treatment of the law of diminishing returns is to await separate paragraph below, it may be stated, that land scarcity implies that it must be very much economised (land being irreproducible) while the fact of hetrogeniety dictates that there be variety in cultivation and productivity. The Malthusian law is based on the twin facts of diminishing returns and scarcity, while the law of rent on these three facts. The productive functions of land-in-agriculture are three: supplying the floor space, and the minerals as also conditions essential for the growth of plants. Every act of production must have some floor space (this in turn settles the scale of farming), while the minerals (not merely fertilizers etc.) are also significant for farming. The third function—supply of factors favourable to the growth of plants—is the most effective for agricultural production. In short, fertility and other properties are the very pre-requisites to the success of various operations of agriculture.

The Economic Aspect:

Attention may now be turned to efficiency, and capacity, as also to input and applied to land. A detailed analysis must deal with the productivity of land; it may be said to have certain implications: the object of investing more and more units of labour and capital is to secure *optimum* production. *Capacity* measures doses of labour and capital that the land could profitably take and are profitable to invest. With more suitable crops its capacity would rise. In other words, land with high capacity admits of more intensive cultivation, than do lands with lower capacity. *Efficiency* is usually measured in terms of output per unit: it is the input-output relation. By input is meant the doses of labour and capital invested on land, and by output, the produce that is raised out of the investment. The ratio of output to input is termed as *efficiency* of land, while *capacity* is measured by the input per acre. Land input is the amount of fertility and other natural factors, that already inhere in it; this is paid for by the price of land. Machine input is in terms of machinery worked on land, and crop input by labour and fertilisers expended. What the peasant is concerned with is the *gross output*, and not the *net output*, which of course is significant. In brief, efficiency and capacity are the twin dimensions of productivity; merely comparing the productivity of two pieces of land, without taking into consideration their efficiency and capacity would be incorrect. Even if the input factors have been of the same quality and quantity, the efficiency of the plots would result in their differing productivity. Similarly, if the efficiency of the two plots is identical, their capacity may be dissimilar, with consequential differences in productivity. Hence, productivity per acre, is the efficiency-capacity total. But more important from the economic view is the value of land as an agent of production: physical productivity is not a safe measure, its location and the marketability of its produce are equally important. Physical, chemical and biological properties of land are influenced by location, while they affect productivity, which is considered in judging its value as an agent of production. Social and economic forces too, are significant. The productivity of land, and its value as an agent of production are judged by economic factors, rather than by physical produce only.

Diminishing Returns:

The choice of decisions that a farmer makes is to a great extent shaped by the prevalence of the law of diminishing returns. Marshall regarded land as a fixed factor: a diminishing increase in the amount of output is the result of increasing input of the doses of labour and capital; but of land it is not possible in same proportion. The law establishes the input-output relations as progressively declining. Its essence is that the successively increasingly inputs of any factor of production will, after a certain point, tend to produce diminishing returns from each additional input unit. To a point, the output may increase, but after that, due to the scarcity of other factors, it must decline, for the optimum could not be maintained. The incremental increase in the total output is on a decreasing basis. After a certain point, the marginal inputs become negative, thus making, even the total output zero. Of course, this point is seldom reached in practice. By expressing the physical outputs and inputs in monetary terms, the law could be translated in economic language. The marginal input of a certain factor of production is compared with the marginal output or return of that factor: in this comparison, the ratios go on declining. Optimum intensity of cultivation is reached at the point of equilibrium, where the cost of the marginal input is just covered by the value of the marginal output. Beyond this point production would obviously not be remunerative. Farmer's own experience informs him about this optimum intensity of culture. This is true of his enterprises, as of factors of production and of the agricultural operations. This means that the law extends to all enterprises and operations. A peasant would so tend to distribute his resources, that the law of diminishing returns is not permitted to wreck them. He would vary his investments accordingly, and try to balance them. The law is significant in the cost output analysis: diminishing returns warn him against undue intensity of culture. The common belief that high production means low costs is not always true in the light of this trend. There is much less scope for the expansion of agricultural operations and enterprises than for the industrial ones. Actually, the farmer is concerned with the contribution that each operation and enterprise makes to his total revenues. Economic efficiency, therefore, does not always depend upon the operation of this law: a complementary enterprise has to be continued for the success of the major one, while a supplementary operation reduces the costs of the others. In various forms is the law operative: total diminishing returns, diminishing marginal returns, diminishing average returns. According to the law of diminishing *total* returns, total output begins to fall: this point is reached when marginal returns have fallen to zero: even the illiterate farmer notices it. The law of diminshing *marginal* returns is the one usually spoken of in economic analysis: it provides a comparison of the input-output relations on an incremental and marginal basis. The zero point may not have been reached, but only the marginal returns may have started falling: this is detected only by an expert, and is operative in the very early stages of farming. In the law of diminishing *average* returns, the average returns begin to fall: a calculating farmer usually bases his farming routine on this tendency: it is therefore the most practical aspect of the law. Diminishing marginal returns give a warning that the optimum point has been crossed. Certain assumptions underlie this analysis: that land (and other factors) are being utilised in the best possible manner, another one is that skills, knowledge, technique and methods of cultivation remain unchanged. Even with the employment of better technique, the operation of the law is checked for sometime, but ultimately, it is bound to prevail in agriculture. Still the impossibility and the unrealistic nature of these assumption are quite evident. There are, therefore, certain limitations on the working of the law: scientific improvements are neutralising its operation, as also a better assortment of labour (now more skilled) and capital (now highly mechanised), while on the new soils, the law may not operate, for the optimum may, still have to be reached. Another limitation is that the law may fail to be felt if the costs of farming begin to register a decline for one reason or an other. Same could be said of the tendency towards rising prices, which may cloak its operation, by rendering tilling remunerative. Analytically speaking, the last dose of labour and capital, which it is just worthwhile to invest, is known as the *marginal* dose. In *extensive* cultivation, the implicit supposition is that the farmer is able to acquire new lands, and that he had the best lands under the plough to start with; expansion of farm operations proceeds to the *marginal* lands, which are just good enough to till, where the law of diminishing returns has operated to the extent of making it unprofitable to expand further, as they just pay their way. The law extends its operation to various allied pursuits *e.g.* fisheries, cattle and horticultural enterprises. The most important and useful practice from the peasant's viewpoint is one which helps him to counter the law: anything which improves the quality of the farm land, or the methods of cultivation will be potent enough to nullify its operation. This is what is being done in the West, where farmers doubt if the law is at all operative. Still, in economic analysis, the law is of supreme importance: the Malthusian theory of population and the Ricardian theory of rent are based on its operation; to the peasant, the awareness of the law motivates him to effect further improvements in cultivation methods. That is why, from the practical viewpoint, the lands have been categorised into three classes: submarginal, marginal and super-marginal; land is *submarginal* when output fails to cover the costs; *marginal*, when it just meets costs, and *super-marginal*, when it registers a profit. Not that these lands are inherently so: they be marginal, or sub-marginal or supermarginal with respect to certain enterprises, and not so for all other. And efficiency in management, too, may make the sub-marginal or the marginal lands super-marginal. The impact of communications and transport could also shift the margin of cultivation upwards or downwards. This discussion of the law of diminishing returns would be incomplete, without a reference to profits and rents: rent is the differential surplus which the super-marginal land earn ower the marginal land, while profits are the result of the varying abilties of the entrepreneurs: what the men of ability (super-marginal entrepreneurs) get over the ordinary (marginal) case. The differential earnings in both the cases may be styled as arising just like rent: this is known as *quasi-rent* in economic analysis.

Land Management:

The problem of land also needs to be tackled on the management level. Land is scarce, and of greatest import to the economy of the nation: hence its management problems need special attention. Usage, maintennce, conservation and improvement are some urgent issues, while the sub-marginal and unproductive lands present special problems. Economy in the use of land is of the utmost importance, for it is both scarce and irreproducible as also hetrogenous in quality—land of a certain quality may be very scarce indeed; *e.g.* black cotton soil in India. A significant place is assigned to the problem of land usage: discriminate usage would go far to conserve, maintain, and sometimes, even improve the land, while a wrong use may injure the national interests in this respect. Productivity, capacity and efficiency of land have to be appreciated in this context, and rightly assessed. With the cheapening and extension of power (and other external economies) the emphasis on mere area is ill-advised: it should shift to man-units: production should be measured in terms of net product per man-unit (what a man can handle) and not per acre. The use of land is not only with reference to productivity, but also with regard to public and private uses: the section below "Economics of Land Usage" will be devoted to this knotty problem. Distinctions need be drawn between farming and mining uses-this latter depends upon the presence in land of inherent minerals which may be explored in an appropriate manner, consistent with national use. This means that conservation and maintenance are important considerations in the usage of land, as also in its management. In respect of conservation, the best thing is to stop the depreciation: the essential idea is that the present and the prospective uses may be balanced in such a manner as to ensure the most of it over a long range of time. Another problem is that of maintenance: the decision as to the level at which to maintain fertility and other natural resources is to be made both at the individual and the national planes. In the individual's priorities, personal considerations would prevail, while in the national context, it would be good to maintain land at high fertility level: this is in accord with the principle of maximum long-run productivity. But there are certain difficulties arising out of different intensities of land, varying rates of depletion and indefinite knowledge about future uses. Intensity of cultivation is another management issue: the degree of intensity is determined by the man-land ratios. Intensity is low, this ratio is high, otherwise not. Its physical intensity, (in terms of input measures per acre) is the usual and common measure. Intensive cultivation obtains, if there is use of labour, capital and equipment, but if there is more land in use, it is extensive. Labour intensity means the greater application of labour units to land, while capital intensity refers to the higher utilisation of capital. A farm may be labour intensive, if it employs more labour; it is capital intensive if there is increased investment of capital. In short, intensity of cultivation depends upon the *combined* units of input. Next are the problems posed by unproductive lands, which are so tilled. The sub-marginal lands could become remunerative with better management. Sometimes, these lands are known as *problem areas*: but the *problem* is to find out to which use to put these lands, for if properly used they would not raise problems. Proper adjustments having been made, the *abandon* and the *problem* lands are made fit for cultivation, or else can be utilised for some better purpose. In this connection, two terms are often used: the *intensive* and the *extensive margin of cultivation*. The former refers to the fact that the larger doses of input are not quite repaying, while the latter refers to that point where bigger investments are not indicated. In other words, under extensive margin of cultivation, more investment in labour and capital will not be made without incurring loss, while under intensive margin the peasant would be be rewarded for his lesser investments. In brief, the management issues relate to the choice between intensive and extensive farming, maintaining and conserving land, the fuller utilisation of various productive factors, problems of marketing, and of land improvements. It is the latter that interest the farmer: use of fertilizers depends upon his own experience, or on expert advice; in tillage he must keep the enterprise balanced in respect of humus, erosion, and costs on his farm. On marginal lands, the operator has to caution himself against the alternative of not bringing the land under the plough, but reseeding it with grass to fight erosion. Land improvements are of two kinds: those involving long-term investments, and those which do not. The former relate to clearing, levelling, irrigation, while the latter present day-to-day problems. In each case, he has to balance the gain out of the investment, against its cost. Another important problem is that of the conservation of water, and its retention in the subsoil for if water is retained in the subsoil, it improves fertility. In the case of arid and semi-arid zones, three methods of improvement are in vogue: liming and pasturing, mixing the grasses in better proportions, and contour-ridging. Improvements may be short-term —these are cheaper—and the long-term ones, which are costlier. The farm operator has to be judicious about their adoption.

Natural Resources and Factors:

These are of two types: those which are under the control of Man and amenable to improvement, and those which are beyond him. Though measures could be adopted by Man to modify these, yet such plans prove expensive. Nature helps agriculture, but in the event of its luxuriance, Man's initiative to work harder is damped, and he remains at the same stage at which History found him. If, on the other hand, rigours continue to be imposed upon him (as in the case of the Eskimos) he is unable to progress much. Foremost is *topography*: it is more important than even geography for the local natural environmental factors. The hardships of the topographical factors—the slope of the land, the direction of the winds, the routes of the waterways—all influence his routine. *Climate* and *rainfall* rank next: bad climate and unfavourable rainfall dull his enterprises, especially for certain crops which are specific in requirements of climate and rainfall and are, therefore, unable to thrive. Even scientific advances have failed to alter them, for farming is not the same thing as glass-house culture. Irrigation does make up for the deficiency of rains, but all lands are not so amenable. The geographical aspect is equally noteworthy: its impact extends over the area suitable for the raising of the different crops, whose distribution is accordingly affected. The general rule is that in the event of competing crops, the one with the more limited areas will have the choice of territory, prices being taken into consideration. The crops that suffer from natural (geographical) limitations can expand their cultivation, if the economic forces are potent enough to neutralise them. Still, variations in soil and climate make certain regions more suitable for raising certain crops than others. Geography has a place of prominence in livestock farming, too. *Physical composition* of the environments provides a key to the nature and character of the agricultural enterprises, and is therefore of great relevance to the management of the natural forces. Structure and suitability of the soil are inter-linked, while afforestation in the neighbourhood does influence cultivation. Similarly, the nature of the surrounding flora and fauna has a place of pride in determining tillage. And lastly, the biological components of the land and the neighbourhood shape the farm activities in a very significant manner; the process of plant growth is dependent upon the operation of these forces. Overland biological life may help or hinder the farmer's activities: several weeds and microbes may flourish as his friends and foes. Hence, biological factors may spell the success or otherwise of the agricultural operations, and farm enterprises.

The Role of Nature:

Land is distinct from other natural resources. Certain natural factors, like fertility, location, irrigation and drainage have been selected above for detailed study. The functions of natural resources and land are delineated in details. The economic aspect of Nature is also brought out, and found to be quite significant from the agricultural point of view. The analysis was based on the capacity, efficiency, productivity, input and output measures: efficiency and capacity are regarded as the two dimensions of productivity. In the light of all these factors, the law of diminishing returns is discussed at length, and its various aspects examined critically. This law is very basic to agricultural and the allied callings, though operative with its limitations and assumptions, it is a long-term trend. Still, modern farming practices are able to counter this law, though not quite nullify it. In this connection, the concept of the margin of cultivation is relevant with reference to intensive and extensive cultivation. Distinction is drawn between profits and rents, though both are payments arising out of differential surpluses. Management problems with reference to land are scrutinised, especially in respect of the maintenance and conservation of the soil: practical suggestions for the solution of certain problems are offered. The need for proper utilisation of the sub-marginal and unproductive lands by the farmers and the public authorities is also stressed, and the issues raised in this connection, examined. Land improvements, (both of short-term and the long-term) are advocated, and the methods of bringing about the same outlined. The remunerative aspects of these improvements are scrutinised, in respect of the contributions they make to the farming systems. In the last instance, the role of the natural resources on the farming systems is examined: the factors selected for detailed analysis and assessment were topography, climate and rainfall, geography, physical and biological environs. It is restressed that the natural resources are of prominence to the successful pursuit of agriculture: these could hardly be ignored in any analysis.

ECONOMICS OF LAND USAGE:

The economic aspects of land usage are intimate to the principles and problems of agricultural economics, especially its productive aspects: the proper use of land does make all the difference to the scarcities in agriculture, for land is utilised for various purposes. With the promotion of welfare, and changing consumption patterns of the people, land usage is becoming more extensive, and no longer confined to agriculture alone: industrial, recreational and housing needs are getting important. The subject has import from the welfare angle, which has an effective bearing for the betterment of agriculture in a country. But the problem would remain unsolved without an understanding of the means of acquiring land, which will precede this discussion. The scope of this section is extended indeed, but fairly important from all points of view.

Acquiring Land:

This elementary issue is the most important from the practical viewpoint, and influences the usage of land. If land is not acquired in an easy manner, and the cost of acquisition is high, the farmer (and also the nationals) must economise. But if land is abundant, and easy to acquire, he may grow careless about its usage, and may launch upon extensive cultivation. Over a period of time, the original uses are forgotten and newer purposes may come into vogue. This change in the usage of land is worth studying. Another related study is the impact and effect of the tenures of land. Hence the relevance and importance of this study. The simplest means of acquiring land is to have land free, especially in the new colonies. The farmer has only to clear the rubble and make the land arable: land is free while labour is scarce. The first lands were colonised because of the convenience of their location and accessibility. At that time, there was no conflict between the public and the private uses, or between the settlers themselves. But gradually the problem became complicated, and lands began to be sold, and were no longer free. Sometimes, the pre-emption system was devised by which preference was given to the actually settled farmers, who had a prior right to own land as against others. At present, there is no country, where land is freely available. Still plots are often gives to peasants on very nominal but long terms. Land settlements have grown in this manner, having been encouraged by governments, who offered lands (often overgrown with weeds) for sale at very low prices. Land hunger, too, played its part for enabling them to buy lands, and thus colonise the abandon and even arid lands. But the land settlement movement should be rightly guided by experts, for on their right and correct utilisation depends the correct usage of land, which is of paramount importance to agriculture and to the national economy. On the peasant's part, the desire to own a home, induces him to buy the settlement farms. Also, a considerable amount of wealth passes to peasants, by means of gifts and inheritances. This need not mean that landlordism stabilises itself, but that the division and fragmentation of landholdings would proceed apace. This may be avoided if the law of primogeniture prevails. Again, sub-division and fragmentation of holdings would take place, if there is intense land hunger, and the population is growing apace. *Savings* finance land acquisitions: the ambitious farmers and tenants save for obvious reasons. This is especially so in the rural areas where the landed property adds to one's status. Savings are the result of the gains that accrue to them out of their enterprises. How many of the tenants and farmers actually become landowners depends upon their habits of thrift and their outlook on life. Credit is also a source of land property: farmers may borrow money to invest in land. Sometimes a mortgage may be arranged. The cost of the loan is another consideration. The arability or otherwise of land determines the size of the loan. Importance attaches to *personal factors*: the farmers' likes and dislikes count for much, for if they are ambitious they would try to acquire land, but if they wear a fatalistic outlook, they remain contented with their lot. "Integrity" of the peasant repays him very amply and rewards him with stabilised possessions clear of any bother. Other qualities—managerial ability, efficiency and capacity, vision and foresight—are relevant. though indirectly. *State* is potent in shaping the form of land distribution: the nature of taxation and its burdens, the land policy and attitude towards landlordism are important considerations. Thus there are many factors working for the acquisition of land by farmers.

Land Usage:

The problem has many facets: conservation and productivity of land, output-input relations, productive and unproductive uses, and the public and the private utilisation. A proper use of land does go far to conserve its fertility. It is appropriate to look at this problem from the social angle, and not merely from the individual farmer's view. Fertility of land is to a great extent, responsible for its productivity. But by productivity, is not implied fertility; which is dependent upon the original properties of land, its capacity to improve, and finally the supply of such lands. Productivity of land, in relation to conservation is interpreted in terms of long-range maintenance of productivity, for an unwise exploitation results in its depletion. The maintenance of land is a significant aspect of its usage. Maintaining land means that the productivity of land, (as it was before production was undertaken), remains in tact, after the act. The sole object of wise and discriminate use of land is to maintain its productivity. In the case of tenant-farming, maintenance suffers immensely, while under peasant-proprietorship, it keeps at the same level: this is quite an obvious fact. Regarding input-output relations; land-input is adjudged in relation to the input of other factors. Also, crop-input has to be weighed *vis-a-vis* the various factors. Land input is paid for by rent of land; crop-input is estimated by means of prices, obtained by them. It is necessary to estimate what part of the input is still unused, and available for succeeding crops. For nurse crops, difficulty is experienced in the matter of adjusting output to land input. Land may appreciate or depreciate by the wise selection of fertilisers or their neglect. Proper drainage and levelling are other factors. When a piece of land is purchased, its inherent qualities, improvements, fixtures are also acquired. Regarding the *optimum productivity of land*, it may be pointed out that each special piece of land has a special level arrived at, by balancing the present and the potential productivity, the methods of cultivation and of technique. "Optimum productivity" means the maximum productivity in the circumstances while the "optimum level" is that at which productivity is being maintained. It is difficult to predetermine this level, for the potential uses of land remain unknown: this level can be sustained by eliminating the non-productive uses of land, which is scarce and rigid in supply. Land, as such, is never unproductive, or non-productive; the problem is viewed from the economic angle, and not absolutely: if a certain piece of land could be used in a better manner, it would be wasteful to utilize it in a less (economically) productive manner. It is not in the national interests, nor of national economy that the wasteful uses of land be suffered any longer: that may require a survey of land resources, and their uses.

Problems of Usage:

Two important aspects of this issue are the implications of land usage. The problem of turnover and returns from land has a bearing on this. Improvements of land are indicated by its uses, returns, and turnover. Different cropping systems present different intensities of land use and maintain land at different levels of productivity: an intensive use of land may spell its high turnover for it is used heavily. Turnover may have yet another meaning: it may be the number of harvests that a certain plot is able to yield annually. There are restricting influences on the turnover being raised: the market impact or lower prices offered for the produce in the market, and the peasant's capacity and efficiency. *Turnover* has significance with respect to the productivity of land: this applies to all farm enterprises. In sum, such use of land would be the optimum as would ensure the maximum return in relation to the maximum turnover, with the available resources. Fertilisers and nutrients would also secure for the peasant the maximum productivity: still a judicious use is advised, for an overdoze may bring about decay and depletion of fertility. In this respect, nutrients are a little better, for they are not injurious to the soil. Advisedly, a soil survey should precede the application of the fertilisers. *Erosion* is equally important in the matter of land usage, for eroded soil is mostly useless: the scientific problem is that of balancing the cost of erosion-control measures, against the losses out of it, and comparison between these: it is a question of technique to decide which anti-erosion procedure to adopt, for farmers choose the cheapest and the most effective methods. This means that they would calculate the extra returns after erosion is fought out, and the costs thereof computed. In estimate of costs, must be reckoned the relative costs of reseeding the land, and the different alternative methods to counter erosion. Land improvements require initial investments, short-term or long-term. Former investments are preferred as they are soon fruitful, but sometimes the long-term ones have to be made as patchwork will not do. All this must be decided in the light of the farm enterprises as a whole, and not from a partial point of view. Still, some short-term investments are of an essential, though recurrent nature. In estimating their value, the resultant future increase in the yield has to be assessed. The effect of the long-term investments on the value of land needs be adjudged. Another consideration is the consequential variety in the uses of land; this would justify the incurring of such expenses, for there is greater benefit to the peasant from a grater multiplicity of the uses of land. Investments in improvements have, also, to be visualised, with reference to the application of the law of diminishing returns, which is of supreme importance in all operations which relate to land, or are associated with it, though not concerned with cultivation only. The problem of land usage, therefore, is of significance to the farmer.

Land Under Cultivation:

Tilling is the most important usage of land, and far outweighs the other uses. This holds true of even the highly industrialised countries of the world, not to speak of agrarian economies. But the point of view, dominating this discussion, refers to usage and not tillage. Cultivation may be in two forms: intensive (or high farming) and extensive (or low farming). The relative intensity may be measured in terms of the labour used, or (more accurately) the resources invested per acre: this may be termed as the *physical intensity* of land. Similarly, there are the *labour*, the *capital*, and the *land intensities*, while all these combined would connote the *total intensity* of cultivation. Land-man ratio is not a correct indicator of the intensity of land, but all the above taken together, provide the true measure. Intensive and extensive systems of cultivation are born out of economic necessity, and need not be confused with the scale of farming, although these may co-exist with it. In launching out on a system—extensive or intensive—a farmer has to assess the costs against the returns in the light of the resources, that he has. How far could he combine the variable factors with the fixed ones (*e.g.* land) is the problem that he must solve. And there is no submarginal land as such, but only a sub-marginal use of land or that which is not remunerative. Hence, the sub-marginal lands are those that do not even cover the costs of production: on these lands the pressure of population is very high but the per capita remuneration equally low; still the peasants do not give up cultivation as they have no alternative employment. It would be irrational to believe that land is submarginal in respect of all uses, Hence the solution of the problem lies in discovering the more remunerative uses of land. In respect of unproductive lands the issue is more complicated for the individual peasant is often unable to bring them under cultivation, and put them to productive uses: these may be abandon lands, till the community awakens to the need for bringing them under some productive uses. In this connection, it may be repeated that land, unlike other goods, is rigid in supply, for it is irreproducible, and additional lands could be brought under the plough, but only within limits, for often the costs of reclamation are high, at least for the humble peasant. Even if the land supply could be increased, through reclamation or otherwise, it is doubtful if the good classes of land could be made arable. The greater possibility is that practical steps for raising the grades of the present lands may be taken. To the community, there is a loss, if the inefficient farmer operates on a good quality land, for he would not utilize it to the best: this is so because land could be better used. Hence the use of land becomes all the more important because of the quantitative and the qualitative limitations on its supply; while quality can be varied, its quantity cannot be.

Public and Private Uses:

Broader issues of policy (and people) are involved in the usage of land: the economic systems are divers and raise conflicts between the public and the private uses of land. Land, as usually understood, includes space relations, and the prevailing complex of climatic, topographic and soil conditions. *Space*, though stable, is yet rigid, and if allotted to one use, may shrink in others. Similarly, climate, topography and other natural traits are static in supply. Soil is the essential foundation of all social and economic activity: everywhere it dominates economic calculations of the planners, for the complexion of economic activities may change with the usage of soil, and with its differing structures. The public interest in land extends over the whole range of its uses, but the agricultural usage is indispensable, probably the most inelastic one, while the other uses are of secondary importance. The public interest lies in the maintenance of the long-range productivity of land, so as to ensure constant and efficient supply of agricultural produce at reasonable price. Not this alone: the public interest also demands that other uses of land should be well-maintained consistent with national efficiency and requirements. It is the equitable distribution of land among all the uses that is most essential, so that land contributes, effectively and efficiently, to national economic progress. On the other hand, private interest stresses the need for long term, continuous and efficient farming: the farmer will make efforts to arrive at the most profitable combination of costs and quantity, though he may be ignorant of the future trends. He would like to maintain the productivity levels, by balancing the soil-depleting with the soil-replenishing factor. In this precise case, his individual interest does not conflict with the public interest, but this is merely theoretical, for there are grounds of conflict between these. The farmer may be unable to maintain land efficiency, or its productivity consistent with the national good. This may be due to his financial handicaps, or sheer ignorance. He may be more concerned with the conversion of personal capital into current incomes, without keeping his capital in tact. Again, the pressure groups may also work: private interest may demand the easing of population pressure, and the satisfying of land hunger by better distribution of land, but the public interest may require smaller farms to be merged to make them into optimum units. While the private interests may call for the growing of commercial crops to augment income, the public stress may be on food production. Incidentally, a conflict may arise over the problems of tenancy, and finally over the problem of nationalisation of land. Clearly, the national interest must supervene over the narrowly personal ones. But, both from the individual and the national points of view, the maintenance of land must take precedence over all other issues. This is pregnant with other allied problems: improving the techniques of cultivation, the utilisation of other resources, with respect to land, the variability of soils and the unit of production. For instance, land is plentiful in newly colonised areas: hence extensive agriculture is possible. One thing is certain: the farmer should be made to use his land in such a manner as not to deplete his land and soil resources. Input-output relations have also to be thought of: they would depend on the relative prices of land and other resources. State could help by the cheap provision of nutrients for soil maintenance. Another issue of import is that of the population pressures: the high pressure of population compels him to continue on with farm production; he is unable to leave the land fallow, at all. It means that the public usage may suffer due to the keen demand for food. And the intense land hunger may usher in problems of its own: uneconomic holdings, and speculative rise of land prices. These conflicts are hard to resolve, though cooperativisation, *if successful*, may be a remedy. *Proper usage* of land can, however, be insisted upon. In the main, the private interest would be guided by the price-cost relationships: this is especially apparent in the sphere of tillage. Subsidies may be given to peasants to induce them to serve the public interest, otherwise even legal action may not succeed. Another method lies in the *procurement* schemes, launched along with *guaranteed prices;* government price policy has a lot to do with all this. Conflicts do arise in the matter of profitability *versus* the adoption of the latest in the technique, which however, may not be profitable for the privateers: probably they have to merge their units in order to make the adoption of new technique profitable; this they may not be prepared to do. It is the sub-marginal farmers who should be made to employ the latest technique, but it is they who do not want to do so. Another conflict arises, when on the mechanised and modernised farms, it may become impossible to cover their high costs. Theoretically speaking, the point of marginality would move upwards as better techniques are employed. Still, because of the recurrent nature of the problem, adjustments in land usage may have to be continually made. Efficient land management enlarges the scope of land uses: the relevant issues are whether the land is being managed by the State or the private owners, for if under state management they would be operated to the national advantage, otherwise conflicts may precipitate. But effective management, under state guidance (by fixing the priorities) may lay down lines of action so that land usage may tend toward the optimum. Still the most neglected issue in this context is that of *land retirement*: with increasing tillage, there is a tendency towards greater growing of non-consumption crops, as also the converting capacity of livestock, and leading to diversification and better combination of crops. From the consumption angle, the demand for land products is on the decline, for consumption is getting increasingly dependant upon synthetics. Hence, land retirement occurs, when lands are thrown out of use, or put to a lower agricultural use; this process is speedy where agriculture is mechanisd and also modernised. In this connection, the fundamental problem that faces the admnistrator is to get rid of his sentimental attachment to land Lands, which are not useful to agriculture may be *retired*: that is in the national interests.

Urban and Rural Uses:

No discussion of land usage would be complete without reference to urban and rural uses: in the former, building of factories and houses and recreational uses are included, while under the latter, the agricultural uses are very important. This throws light on the more significant uses of land, and on the problems of land usage. From the economic angle, the distribution of land in the urban and the rural uses is of great relevance. In the first instance, there is the impact of industry, for among the urban uses, it is the industrial usage that matters: land is also under houses and other constructions but the industrial usage is far more important. Two pertinent considerations are: *first* how much land should be allotted to the industrial uses, and *second* how much of it to particular industries. But the pressing problem is that of the suitability of land for the industrial *vis-a-vis* the other uses: this is decided by the price of land and the demand for it. It is the law of comparative advantage that is applicable here to decide upon these uses: the relative usefulness of land under the various industries is decisive in this matter. It may now be pointed out that land for the industrial uses may as well be required in the rural areas, with the trend towards the ruralisation of industry, especially marked in the economics of location. Strategy and defence, high urban rents, lower wages in rural areas, the greater possibilities of expansion in the countryside and the electrification of villages—all these have worked to the same end. Diversification brings about a more enduring maintenance of land. Another usage of land is for city farming ranges: certain areas in the suburbs may be set apart for "perishable" crops, to ensure fresh supplies to citizens, without creating complex problems of marketing. All these "ranges" ease the pressure on rural lands, and obviously have good impact on land usage. Other uses

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import are those confined to housing, recreation and transport: housing is a basic necessity, next to land; recreational needs are now being greatly attended to, while transport is also being extended in the interests of the general and the agricultural economy. All these usages point to the diversification of land uses, and evidently, to the good of the agrarian economy, though they may mean a greater pressure on land; the retired lands should be diverted to these uses. The inference appears to be that the differentiation between the urban and rural uses is now fading away; the industrial uses are not extending into the urban areas; and the distribution of land between the urban and the rural uses is in accord with the law of comparative and relative advantages: hence balance obtains between the sectors.

Usage of Land:

The problem of usage has been discussed at length. The economic aspects of land acquisition are relevant to the problem in hand: the economic implications of this problem are brought out above. In an examination of the problem of land usage, productivity and conservation of the soil, the maintenances of land, the input-output relations, and the optimum usage count for much. Reference is necessarily made to the productive, non-productive, unproductive and wasteful uses of land: all these are distinguished from one another, and their respective significance, has been underlined. Efforts should be directed to eliminating the non-productive, unproductive and wasteful uses, though the unproductive uses (strictly speaking) may be quite necessary for society. The problems of usage are looked into from the angles of turnover and returns, fertilisers and nutrients, and of erosion The issues of land improvements are outlined above in the light of the problems of land usages: the most important usage is tillage; implications of marginal and sub-marginal uses of land are stated in the economic perspective. The relative importance of the public and the private uses, and the conflicts therein, have also been scrutinised: conflicts arise out of the problems of soil maintenance, population pressures, price-cost structures, and agricultural techniques. In this connection are discussed the implications of land management, correct usage of land, and land "retirement"—the inferior lands no longer productive agriculturally should be retired. In the study of urban and rural usages, various factors are enumerated as being responsible for the distribution of land, the expansion of farming activities to the suburbs: all these factors are favourable to the better stabilisation of the economy, and contributory to economic usage of land.

SUMMARY AND CONCLUSIONS:

The scope of this chapter is comprehensive: the main traits of farm production, the importance and role of the natural resources, (including land), and the complex problems of land usage have been examined in a critical manner. The section on "production on the farm" points to certain practical conclusions: net output is important both from the individual and the national viewpoints, while these two (apparently conflicting viewpoints) may be reconciled, by laying a greater stress on the latter, and by providing suitable attractives, especially in times of stress and strain. Production policy must be in accord with the principle of long-run maximum productivity; but to this attaches the rider that the agricultural systems do not stand islolated from the rest of the economy, nor could that be possible. The production plans must fit in with the general policies of production; in fact close intergration between the agricultural and the non-agricultural sectors must be aimed at. Still, it is not possible for the peasant to go on varying his production systems to the changing market needs, (though it should be so) due to the rigidities of farm production. It is therefore, only practicable to make minor adjustments. Methods of adjustment must be such as to enable cultivators to make changes without disturbing the whole range of productive forces: the guiding principles lie in the theory of adjustment, with application to agriculture. In different farming systems, and in the case of local and special demands, the techniques of production differ as also the methods of production: they have to be varied accordingly. The study of the natural resources establishes that land is of the utmost importance in the operation of successful agricultural enterprises, for without it, their very initiation is well-nigh impossible. Another lesson is that land is the most important single agent of agricultural production--in fact, more important than even the natural resources, for the price of land and its rent includes the provision of the other natural resources. The usage of land is a matter of the operation of the law of comparative (and relative) advantages, and function of welfare economics. As and how the divers uses get diversified, it becomes more and more profitable from the land standpoint; land under divers uses gets exhausted but slowly, its resources are conserved better and prospectively, and above all, it adds considerably to the national wealth. Conflicts in the private and the public uses of land arise out of the pursuit of the profit motive by the peasant, and his inability to view the problem from the wider social angles. Land is limited, quantitatively and qualitatively speaking, hence great discretion needs to be exercised in the matter of using land for various purpose: the state should be the guide.

Nature in Agricultural Production:

From the wider national point of view, the statesman should look at the whole country as if it were a single enterprise and then reckon what maximises national income, and also calculate what the cost to the nation would be if the next best alternative were adopted. The most direct way is to set up national budgets of costs and receipts, and expenditures with the alternative production programmes. Being the most important agent of production, under the control of man—who is able to increase its productivity, and also use it judiciously—it is land which needs to be carefully utilised, so that the progeny does not suffer and face depletion of the natural properties of land, or their total exhaustion. Such public uses of land, as are consistent with public welfare, must be encouraged, by the provision of suitable attractives. But it may also be stated that though the most important, the proper exploitation of the natural resources must accord with the outlook and the attitudes of the man behind the plough upon whom attention is to be focussed in the next chapter, as the next logical step now.

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SELECT QUESTIONS AND PROBLEMS:

1. Examine critically, the role of Nature in the process of production generally and in agricultural production, in particular. What is the place to be assigned to land? Should it be regarded as a distinct agent of agricultural production?
2. Distinguish between: production and output, gross and net output, comparative and relative advantages, agents and factors of production, primary and secondary agents, enterprise and organisation, and land and natural resources in agriculture.
3. What factors guide the farmer in his choice of production on the farm?

4. State and apply the Law of Maximum Long-Run Productivity to agriculture.

5. Enunciate the Law of Diminishing Returns, with its assumptions and limitations?

6. How far is the law of diminishing returns applicable to modern farming systems, and scientific tillage?

7. Assess the role of the natural resources and factors, (apart from land) in the process of agricultural production. To what extent could they be improved upon?

8. What are the various issues and methods of acquiring land by peasants?

9. Enunciate the main problems of land usage. How would you resolve the conflicts in the usage problems, with special reference to public and private uses?

10. Write critical notes on land retirement, rural, and urban uses of land, optimum usage of land, types of intensity of cultivation, and problems of land usage.

CHAPTER V

THE PROBLEMS OF LABOUR

Human Basis—Farm Functions: Agricultural Jobs: Labour Efficiency: Labour and Farming: Labour Supply: The Farm Labour Market: Labour Problems: The Human Approach. Labour in Agriculture—Recapitulation: Rural Work: Scientific Labour Management: Work Simplification: Urbanisation Effects: Labour in Agriculture: Agricultural Labour. Summary and Conclusions—Human Problems of Labour. Select Questions and Problems.

THE human basis of Agriculture is its important aspect. Labour welfare is now recognised to be the aim of all enterprises, as the economy is run for the benefit of Man. Two sections are proposed to be devoted to labour problems in agriculture: the first section to the human basis, while the second to some problems of labour. Starting the discussion with a review of the farm functions, and an enumeration of the agricultural jobs the first section outlines the problem of supply of labour, and the facts about the farm labour market, and ends with the summing up of its various aspects. In the next section, which sets out the various aspect of labour problems in agriculture, the issues of scientific labour management as on the farms, the important question of work simplification (including mechanisation and its impact) and the urbanisation effects on agricultural labour are outlined. The argument is analytical, though there is ample enumeration and description of the several facts of labour issues.

HUMAN BASIS:

The role that the human agents play in agriculture has a twofold importance: that is for the benefit of agricultural production, and also for their own good, in so far as agricultural production goes to raise their own standards of living. That way lies not only the welfare of the farming community in particular, but also that of the nationals at large. The conditions of the man behind the plough are very pertinent to farming, and also its efficiency. And these problems are increasingly engaging the attention of the planners, the statesmen and the administrators. If only to improve the tone of the general economy, and to remove the sectoral imbalance, it is imperative that the agricultural operator is uplifted to the same standard as his industrial counterpart, especially when his condition is, at least in the backward economies, very desperate indeed. It is to clarify the issues, which are often beclouded with sentimentalism, that the problem is attacked from the human angle first, and not from the completely detached one. The analytical bias persists, but there is description and enumeration of the farm functions, agricultural chores, the nature and character of farm work. Still, it would be idle to pretend that this section, or even this chapter, exhaustively treats the subject, for that would be impossible in this elementary survey. The problems of labour supply—another human aspect of the agricultural labour—are also discussed. And, the conditions of the farm labour market—which is entirely distinct from the industrial labour market, and also much restricted—are delineated. The last topic is bird's eye-view of the labour problems, in the light of the issues raised in this section; this serves as a link with the next section.

Farm Functions:

These functions have to be performed by the operator in succession and are of varied sorts. The human element is organised in the units of families: in case these are large, members have to find jobs elsewhere, or take up subsidiary work, but if these are small, they have to hire labour. The nature of work is not the same as that in industry—it is more complex and composite. Again, the usual unit of labour is the family and not a single person. The same operator is the labourer-cum-manager, unless he is hired by somebody. The two aspects of management and labour are very much integrated in farming. The operating organisation is thus very "democratic", in that the manager participates in the assignments of the labourer's chores, and the labourer also makes suggestions for the improvement of farm productivity. The distance between the labourers and their masters is bridged, for they usually work together, and in unison. Labourers' suggestions may often be accepted, as they may be more experienced than the farmers themselves. Strict management functions relate to the laying down of the general policy, supervision of farm work, and selection of the enterprises and systems: though even here the voice of the labourer is heeded. The framework requires a lot of foresight even on the part of the hired labour: their timetable must fit in with that of Nature. Still, some problems face only the manager and not the labourer: location, size and choice of enterprises. But farming is an industry where the operator has to perform a *dual role*: he must be a manager as well as a labourer; this is truer of the peasant-proprietor than of any other type. Aptitudes of the farmers differ, but the twin functions appear to be compulsory for them. Even in the case of the landlord, the labouring chores are not ruled out quite, unless he is an absentee. Apparently these are dominant in the case of the tenant, who, however, has also to make some organisational decisions. As most of the farming work is done by families, the typical farm family can be taken as the unit; in this case the farming-cum-labouring functions are well integrated. Personal factors, like health and physical capacity, skill and foresight, time-sense and patience, and adaptability and elasticity, are also relevant to the successful performance of farm work. In fact, the human factor is not much under control, in the same way as the other factors can be. Human labour is variable both in output and productivity. No doubt, better equipment and capital, as also better aptitude and efficiency, make all the difference; still its place is important though this labour may not be so vocal, as industrial labour is.

Agricultural Jobs:

The nature and character of farm work is complex. This study is to reveal how labour use is economised on the farm. Farm work is distinctly different from factory work; hence it raises special problems of labour; the issue of work simplification has now assumed a special significance with the growing mechanisation of agricultural production. The nature of farm work is continuous and outdoor: hence the labourer should be both hardy and strenuous. Skills of varied types are called for; the unskilled labour is useless here. In view of the fact that it requires the ability to give and receive orders, the worker should be accordingly trained. Again, the chores mean strict adherence to the schedule; the labourer must exhibit faithfulness to his assignment. And above all, there should be the ability to co-operate with neighbours, otherwise farming (in isolation) may not be practicable. In this connection, the wise entrepreneur also aims at the economy of labour use; labour is economised, when mechanisation does proceed, also when it is effectively employed, or when greater dependance is placed on family employment. This problem is especially acute, where population is not high, but, the employment of labourer in agriculture, low. It may also be pointed out that a good part of the land is "stored-up labour": on more efficient lands, labour is automatically economised. The objective is to turn out as much as possible: work is determined by the capacity to do useful jobs. There is also appreciation and depreciation of labour; a man may work so hard that he is soon worn out. The optimum rate of his input is that at which he is enabled to turn out the largest quantum of output throughout his life-span. Sometimes, in an effort to appreciate his efficiency, he is imparted such education as may be divorced from his vocation. Also, must be recognised the place that the labourer occupies in the motivation of agriculture. Good management could reconcile the different modes of motivation and make labour efficient. This is a complicated problem, in view of the fact that the farm labourer has to be a jack of all trades. And it becomes still more complex, when different types of labour are taken into consideration: the peasant proprietor, the labour of the family, of the child, of the tenant, and of the hired man. In view of the diversity of the types, it is difficult to regulate labour in agricul[illegible] hours are practicable, while conditions of work are well-nigh impossible to standardise. In large scale industry, employer-employee relations are a headache, but this need not be so in agriculture, except under absentee-landlordism. Mostly, labourers live with farmers, for whom they work: the distance between the employer and the employee is thus not marked. Still, it must be recognised that agricultural employers do not possess the same tact as is evidenced among the industrialists. The essential of good relations is that masters must respect the feelings of their employees, especially on small farms, while on the large farms, they need great tact. They, usually, favour task wages, and piece rates. The discussion of the agricultural jobs would not be complete without a passing reference to work simplification: the object is to exert (physically) no more than is necessary. It may be clarified, in parenthesis, that the mechanisation of agriculture, is not a very essential pre-requisite to work simplification. Work simplification is the product of good and efficient management of farms and of labour. While a full and analytical study of this important subject will be taken up in the section below, it may suffice to stress here that the natural operational rate could be stepped up by habituating the worker to his various chores. In sum, work simplification consists in adopting the methods of economising the body movements and reducing the physical and mental strains: this may be done by motion pictures, or by introducing rhythm into the movements. Work simplification goes to ease the burdens of labour and increase its capacity to work. From it would emanate good and systematic *division of labour;* it is (identically) not the same thing in agriculture, as it is in industry, for in farming, there is the absence of functional division as between the various operators, all of whom perform composite and combined functions. Again, farming is usually on a small scale, hence division of labour could not be of a minute type. Also, its operations are of a biological nature, depending on the freaks of Nature, therefore routine work is much less than it is in industry. And labour force on the farm is usually small, this fact may not permit minute division of labour. Still, some specialist jobs may persist: dairymen, tractor-operators etc., but even these specialists do take up other work besides their own: specialisation on the farm is of a limited nature. Specialised farms do, however, exist (these were adverted to above): these may be regarded as practising division of labour.

Labour Efficiency:

Generally speaking, labour efficiency can be stepped up by structural and organisational factors. As pointed out earlier, three distinct factors need be studied in this connection: capacity, efficiency, and productivity. Of course, the output of labour depends upon directional factors, too. In agriculture, this problem is of supreme import for here, more than anywhere else, output is rather low, there being little division of labour. Greater pressure is put on the worker, who has to exhibit a keen sense of responsibility. On the medium and the small farms, especially, the personal factors count for much. And there is a wide range of technical ability that is called for in agricultural chores. The conditions of work and the scale of remuneration are usually low. Skill, strength, and crop-and-livestock sense are some of the factors. As indicated earlier, capacity and efficiency are the twin dimensions of productivity. *Capacity* refers to input: wide differences of capacity exist among operators, with respect to the amounts of land, labour and capital (including equipment) that they could operate. But certain plots of land require more efficient labour than the others do. *Efficiency* is to be distinguished from capacity, in that the former refers to the output per unit of input, which is indicated by his capacity. Capacity is thus related to efficiency, for its calculations are based on the former. Different lands yield different results per unit of labour expended on them. From another angle, the total product when divided by capacity equals efficiency. Factors possessing high efficiency must be combined with labour of high efficiency, in order to secure optimum results. Various factors make up for labour efficiency—mental, physical and technical qualities—as also personal management factors (planning, assignment, and assessment). Planning is the first stage, while the assignment of tasks (putting the right man in the right job) ranks second, and assessment (using yardstick to measure output) comes last. The indices of productivity are either in terms of acreage or labour or produce of the land, or man-hour units (from the labour point of view). It should be clearly borne in mind that capacity, efficiency and productivity are all computed in prices, which again are the result of the factors of demand and supply. *Net productivity* is what remains after meeting all the expenses of production, while *net efficiency* is found out after deducting overhead charges: it is efficiency at the optimum. Capacities and efficiencies of operators and supervisors are neither fixed nor rigid. In the case of juniors, (who could be given better training), efficiency and capacity could be improved. A clear understanding of the relationships between these three (capacity, efficiency, and productivity) is helpful in maximising outputs.

Labour and Farming:

Labour requirements of different farms are varied. (*e.g.* on family farms, large farms). These also vary with respect to the size of the farms; on the speciality farms these requirements are of a qualitative nature. Ordinary farms could not afford to employ skilled labour. Hence, requirements of labour are from the scale point of view and not from the speciality standpoint. On the *family farms*, the family labour is usually employed, but the supply of this type of labour could, hardly, adjust to the farm size. A family is not a stationary unit, it goes through a cycle of growth. Some members may emigrate, while others take to farming—this depends upon their spirit of adventure. A wise farmer should increase the size of the farm with the size of the family, though this is nearly an impossible task. In the backward countries, especially, labour supply on family farms could be anticipated as being large and growing. Hence, supplementary enterprises need be undertaken by the family farmers, or regular enterprises run more intensively, especially if the family is expanding; labour intensive enterprises may be advised. The inference seems to be that these farms would be less inclined to adopt work simplification projects, or proceed ahead with mechanisation. On the very tiny farms, and other small units, the requirements in regard to extra labour are confined to "rush" seasons only: the farmer should calculate how much extra labour he is to employ. Sometimes, labour is only needed for short periods, this often results in high wages at these times. But if employed on a yearly basis, labour is more efficient and responsible. Where better types of labour are wanted, hiring is on a permanent basis. The marginal principle is applied here. The level of wages in the "rush season" depends upon the prospects of finding employment in the "off season". It should be borne in mind that the farm labour market is not well-organized, while wages are dominated by custom and tradition. But more of this in CHAPTER VII, THE SHARING OF PRODUCE. On the large farms, the owner is usually an absentee; he employs a foreman or a supervisor. On these farms, there is both division of labour and mechanisation, while labour employed is of various grades and qualities. Large-sized farms are *speciality* units, and admit of special operations; consequentially the demand for labour is highly specialised, and qualitative. Mechanisation also raises a host of problems of displacement of labour and of its re-employment. The working of labour in gangs and groups involves special considerations. Some general characteristics are that the supply of labour is unregulated, and especially high in the peak season, while labour conditions are chaotic, and sometimes trying. Farmers enjoy an off-season. Housing is not of up-to-date standards, except in the very advanced countries. Decasualisation of labour is advocated by labour experts, but it is easier said than achieved, due to practical difficulties. At times, legislation is undertaken to regulate labour conditions in agriculture, but it is hard to implement its provisions for obvious reasons. In sum, the labour requirements vary with farms, and their systems, and the degree of technological development. The larger the farm, the greater the demand for labour, unless it is highly specialised. Farm enterprises, also, influence the demand for labour, its size and nature. Very few farms (only estates) could afford the services of experts and specialists. The peak seasons are followed by "slack", "off" and "dead" seasons. Fluctuations are registered from day to day. Though it is difficult to adjust the size of the farm to the labour force available, it is easier to so fit in the enterprises, that the demand for labour dovetails with the work span. The problem is, therefore, that of correct labour management. In respect of casual labour, it is not easy to decasualise it except by the method of co-operativisation. A better distribution of labour is hard to achieve, for agricultural enterprises and operations are not identical always.

Labour Supply:

The total agricultural population determines the size of the labour force available to agriculture: it depends upon the preference of the people for agricultural pursuits. Rural population is mostly surplus: this fact raises problems of its employment. Farmers are stay-at-home people and have little knowledge of opportunities elsewhere. The cost of rearing children in the rural areas is low. The problem of rural surplus population is thus a headache. In the rural areas, it is the family labour that dominates the other types of labour: the ratio of floating labour to it is very low. On the family farms, the labour that is actually used is determined by the size of the family and its farm. Supply of effective labour from the family is not constant either. Even if there were perfect equilibrium to start with, maladjustments wòuld accur within a generation. And family labour is outside the orbit of legislation, nor are its costs calculable, for it is not employed on a commercial plane. There is also the fusion of the managerial and manual functions; specialisation is not possible nor is practicable. Dispersion of the functions is not advisable either, for there is little to be gained out of the same, as the jobs are of continuous nature, and have to be performed in an integrated manner: the farmer is an all-in-one person. The structural composition of this population influences, to a great extent, the complexion of agriculture. If land is sufficiently available for tillage, no serious problems may arise, but if not, complications will come to the fore, and land hunger intensify. Problems of peasant proprietors have been discussed above. The labour force proper comprises: casual or permanent, skilled or unskilled types. It is no longer as silent as before. Usually, it is surplus to the needs of farming; this is very true of the backward, under-developed and the transitional economies. Tenants are the next category: it is proposed to study the problems of tenancy in CHAPTER VII, below. Craftsmen, though not farm labourers in the strict sense, are important in that they make the village self-sufficient, and also diversify the pattern of employment. Recent urbanward movements have driven these craftsmen to the towns. The last category is that of "servants", who persist in the backward areas; they should be uplifted. In this connection, it would be interesting to observe that the Malthusian law of population is still applicable to the agrarian sector of the economy, and especially in the backward communities. Malthus gave a mathematical formula for the growth of population with reference to the food and other resources; in his opinion the former tends to outstrip the latter. It is assumed that the law of diminishing returns operates and applies to all enterprises. Malthus's advice was that people should restrict their numbers, or positive checks (imposed by Nature) will slice off a part of the population. Experience has it that the growth of population is at the wrong end, the poorer sections multiply faster than the others. But now this law stands discredited in demographic literature, for it is inapplicable to modern conditions and not at all to industrially advanced countries. Faith is now pinned on the Optimum Theory of Population, which applies the concept of the optimum to population: optimum level of population is that at which the per capita income is the highest, and beyond which the living standard is to fall. A country is under-populated if its standard of living rises with a rise in population, and over-populated if the same falls with an expansion of numbers. Dr. Dalton has also pointed out that the optimum is not a static, but a moving point. Applying these concepts to farming, it is evident that the effective farm population is influenced by the trends of farm movements, which are of several types: from one country to another, from farm to industry, from rural to urban areas, from poor lands to good lands, and "age mobility" or the movement of the people in the active age groups to jobs other than farming. International movements of population are not common, but restricted movements from farm to industry ease the pressure of population, though these may mean the depletion of the manpower, available to farmers. The urbanward migration involves the problems of a switch-over to urban living, and often starves the rural areas of the much-needed capital and craft. The preference for good lands is not of much import, for in over-populated countries, this is stemmed by the land hunger which is intense. Age mobility is not for the good of agriculture, for it starves agriculture of active man-power. The effective labour supply to the farm occupations is dependent upon the trend of population, engaged on agriculture, the total labouring groups, and the number of able-bodied persons who are participating in farmwork. It is determined by the character and nature of farm movements, as explained above: the problem is that of directing these movements in the right channels, in order to achieve regional, and economic and occupational balances.

Compulsory allocation of labour may be resisted or evaded, unless there is the provision of right motivations. Sometimes, better working conditions, better scales of pay, and other amenities are potent to canalise the labour force into the desired employments.

The Farm Labour Market:

It must be admitted, at the outset, that this is very poorly organised. Labour exchanges hardly exist; contractors perform this duty if required; and migrant and casual labourers report for duty, for they are a fleeting force. Mainly, this market is local. Usually, the demand for labour varies with wages levels (in the agricultural enterprises) custom and sentiment, and the nature of the farming operations. There are difficulties, too, for skilled labour of the right type may not be available; lack of knowledge and the costs of migration are other handicaps. Better fitting of men to the respective jobs would result in better and higher wages than do otherwise prevail. The demand for labour is determined by the nature of the farm work. Agriculture is very much unlike manufacturing or commerce for it has few repetitive jobs, and calls for a good deal of adaptation on the part of the labour force. Agricultural workers have to perform many tasks; thus the demand for labour is of peculiar type; farm work could not be divided or sub-divided, nor units of expensive machinery. There is, however, a large assortment of tools and implements, which the peasant must be able to use. The labour force may not be highly skilled, but must be proficient and efficient. Again, demand is seasonal: this point has been discussed above. Impact of the technique on labour is equally important: mechanisation has significantly improved the productivity of labour, and reduced the arduous nature of the heavy odds, as also drudgery; speed is ensured. But the mechanical appliances have, by no means, spread so fast, as one may imagine, for mechanisation is often costlier than labour, especially in the over-populated countries, while the dependence of the system on cattle is another factor noticeable in this connection. Work-simplifying appliances should be employed and not the labour-displacing ones. Summing up the characteristics of the labour market, it may be said that they are emphatic of the imperfection of this market: demand is neither permanent nor stable, (absolutely speaking) but significant. There is no organised labour market, and the problems of demand and supply are not clearly demarcated either. This market is highly local, though migrant labour is also recruited, mostly for large farms. The regional differences in regard to these forces tend to persist.

Labour Problems:

Agricultural labour problems are important, not only from the viewpoint of agriculture, but also the economy in general, and, above all, from the labourer's angle. These issues portray broader aspects of agrarian relations. The major problems relate to child and women workers, labour relations, and the attitudes of employees, and housing and wages. Significant is the contribution of women and children to agriculture: family labour is inclusive of them. In agriculture, there are assignments safe enough for them; in fact some peasants marry simply because they need helpers. Wages, when paid, are determined by custom and tradition. Farming chores are adjustable to labourer's capacity. Mostly the labour is local or recruited from the neighbourhood. Labour relations are pertinent to the improvement of productivity. The supervisory jobs are difficult, while the intensity of work is great, especially in the peak and the rush seasons: the tasks are spread over a large space. Labourers have to be responsible, otherwise, the jobs may languish after the schedule: slackness is harmful to farm operations. From all these points of view, the maintenance of good labour relations is essential to the performance of good work. Attitudes of labourers also count; the routine of work is shared by the employer and the employee alike, hence production index could rise only if there is complete cellaboration between them. Usually, the farm labourer is an ignorant, untrained person but equipped with some experience of farm work. In the backward communities, he wears a fatalistic and contented outlook on life; this lowers his efficiency. But all labourers want congenial and secure jobs, are anxious to rise to the status of peasant proprietors, and not remain landless, or casual. The problems of housing and wages are also acute: in regard to wages, the attitudes of the state authorities and their policies may be helpful, though the implementation of the same is often difficult. Agricultural wages (about which more would be said below in CHAPTER VII) are settled locally. Housing is simply in a very bad way in the rural areas: for this purpose, co-operativisation is advised. A connected problem is that of employment: in the event of unemployment spreading, discontent may becloud agrarian relations. Family labour is usually over-employed, while under-employment is usual in the rural regions. Over-employment reduces the opportunities for wider employment; that under-employment is a social evil, need not be proved. Educational extension and other uplift programmes are other pressing problems. But, in most communities, these problems have been only partially tackled; in backward regions, they have been ignored so far.

The Human Approach:

The above approach to the problem is just human for stress has not been laid on the labour aspect, but on the human aspect of the problems: the role of the human agent of production is stressed. Labour functions in farming chores initiated this discussion: the role of the farmer-labourer is multiple: at least he is a labourer-cum-manager. The subject is studied under the headings of division of labour, and work simplification (which may be recommended instead of mechanisation). The problem of labour efficiency is discussed in the light of labour capacity and productivity. Labour requirements on various farms are analysed, and the issues of labour supply delineated as against the requirements. The supply side, including the trends and determinants of population have been examined, with an outline of the two theories, the Malthusian and the Optimum. The movements of farm population are followed in their impact on the effective labour supply. The study of the farm labour market reveals that it is imperfect, local and unorganized: the impact of technique and innovations is brought out. A few select problems of labour—child and women labour, housing and wages, employment and education—are also discussed in outline, and main suggestions in this connection given.

LABOUR IN AGRICULTURE:

While the human approach to the problems of agriculture labour is important, the study of the same from the detached angle is equally significant. In this section are discussed the various aspects of agricultural labour and its place in the national economy: the nature of work in agriculture, the satisfactions derived from the same; the application of the principles of scientific management to farm labour, the rationalisation of labour management, the study of the income data, farm mechanisation and the displacement of labour arising therefrom, work simplification and the effects of urbanisation. In this connection, a study is to be made of the theory of reorganisation as it applies to labour. The point of view is both social and human, for the two are very intimately interlinked, and not separable.

Recapitulation:

Certain important points made above may be recapitulated, before launching out on this analytical survey. The importance of the labour force in the agricultural sector could hardly be overemphasised. The distribution of the labour force in the spheres of agriculture, manufacturing and commerce, is noteworthy from the viewpoint of the general economy. If the demand from other industries is low, the excess labour supply would create a glut in the farm labour market and increase the pressure of population on land: this is the case with the under-developed economies. Agricultural labour is different from its industrial counterpart, for it is to work in the trying conditions imposed upon by natural hazards, and to complete the assignment, before the weather takes an unfavourable turn. The factory labour could afford to be unskilled and is usually standardised, but not so the agricultural labour. Division of labour assumes destinct forms in the factory and on the farm. And management principles have different applications to agricultural and industrial tasks. Agricultural labour has problems of its own. This sector of the population forms low strata of the society in most countries, and gets the worst treatment in the backward economies. Consciousness is growing among them now, and they are being uplifted, too, but that is quite a slow process. In other sectors, restrictions are imposed on the employment of children and women, but not so in agriculture. Wages paid to agrarian labour are mostly determined by custom and tradition, this is not so in the case of other sectors. In agriculture, it is an integrated labour force that works. Physical and mental work is indistinguishably combined together. Of course, there are callings in the rural sphere that have a non-agricultural trait, but the switch-over from these to the farm work is very frequent so that the distinction between them is not fine. The scope of domestic crafts has undergone a change with the rise of machine industries; hence, most of this labour force has been driven to the farms. In the rush season, all the labour force in village is employed to help the farmers. The distribution of labour is thus to be viewed as between the economy as a whole and the rural regions, most of the latter being engaged in agricultural chores. The employment of labour in the various sectors of the economy does not much influence the composition and strength of the labour force in agriculture. If, however, the other industries are under-developed, there is greater pressure of population in agriculture, with the resultant uneconomic farming. It is, therefore, in the interests of agriculture, that there is the growth and development of the other sectors: that is why most seasonal industries are being ruralised. The pace of mechanisation needs also to be considered, for that releases a lot of agricultural labour for the other avocations in villages.

Rural Work:

Detailed examination needs be made of the rural work, as also the distinction between agricultural and rural assignments. Rural work embraces both agricultural and non-agricultural jobs. But the description would hardly be complete without a reference to rural living, and also the satisfactions derived therefrom. Stress needs be laid on the economic and social disparities between urban and rural life. All this should be viewed against the social canvas of the rural society. The first noticeable thing is that the rewards for rural work are deplorably low. Occupations need not be hereditary, except in those places, where economic opportunities are few. Still, the trend towards agriculture is unrestricted. Not that rural work is uninteresting, it is quite creative. Favourable environment and suitable work could improve efficiency and productivity. The canvas is fairly large, though the utilisation of opportunities is disappointing. Life in the rural areas has been over-glorified; but, in fact, this need not be so. The resources of the individuals are very meagre, hence, their standards are low. The desires and ambitions work on a very limited orbit; this fact accounts for low living. The need is for reconstructing village life in accord with their needs and desires. Also a measure of success in economic pursuits is a factor in successful living. The marketing organisation determines their incomes, and is of relevance to rural living. Economic resourcefulness of the villagers is another contributory factor. Harmonious social, cultural, and educational services are factors responsible for successful living. Last, but not least is the phenomena of change in the rural economy: in this respect the impact of technique is noteworthy. Social aspects, too, cannot be ignored. With the switchover from subsistence to surplus farming, the ratio of equipment to manual labour also changes. The town is invading the village, while industries are being ruralised: both those forces help to widen the villagers' horizons. Two social groups and two social modes of living act and react on each other, with the very obvious result that the villagers are adopting the urbanish way of living. The peasant's shell is being broken, and his isolation being shattered, too. This process is operative in all economies, only the pace is different. Segregation of rural and urban communities would be impossible when industries, transport and communications pervade the countryside. All work is undertaken to make living worthwhile; hence, the importance of satisfactions in this respect. The first basic need is to provide food, shelter and clothing, then improve family living, and lastly improve the farmers' personality and cultural values. An empty stomach does not accept the ideals of improvement. Surprisingly enough, the backward economies run subsistence farming, still their populations eke out a sub-human standard of nutrition, for it is not progressive farming that they adopt. The pre-condition to better farming is that they should be able to derive human satisfaction, (at least of elementary types) from their work. These satisfactions should extend to their family life, for it is the family that is the rural labour unit; moreover, the villagers are also devoted to their families more than the townsmen are. Economic disparities do persist as between the rural and the urban avocations, the agricultural and the non-agricultural pursuits. Doubtless, these disparities would break down over a period to time, but, till now, they are to be reckoned with. The effort should be directed towards an extension of the amenities of urbanisation to the ruralities. Cross-currents of thought, cross-fertilization of ideas, cross-influences of cultures—all these are important from the standpoint of building a homogenous society. Disparities exist in the matter of incomes, in respect of modes of spending, and in regard to the provision of amenities of life. At present, there is a strong bias in favour of urbanisation; the educational system serves primarily the urban masses, who are ignorant of the needs of the ruralities. Again, there is a better provision of the amenities of life to the townsmen. The contention that the villagers are not used to these amenities, (and therefore, they need not be so served), is no longer tenable. Community setting, in this context, is a glaring fact: rural communities may be revitalised financially, so that they *can* take to a progressive way of life. Hence the urgent need for education, transport and communications being extended to the rural regions. Permanent subjection of the rural labour to low wages and low standard of living has been responsible for their low efficiency, and their gradual deterioration. The very fact that farmers have now grown conscious of their low standards of living has made them discontented. To blame the rural masses for their low living, "because they have multiplied too fast", is to misread the implications of the Malthusian theory, for poverty-stricken people will always multiply fast. The remedy seems to lie in elevating their living standards, and do away with the disparities persisting between them and their urban brethren. The social and cultural environment should be made receptive to accepting new technology, and improving their living standards. The fact remains that the rural people, and agriculturists have been, so far, treated as second-rate people, both from political and welfare angles: hence, they have lagged behind in the process of social and economic growth. It is because of their inability to derive satisfactions from their incomes, that their motivation to earn more is damped, and desire to progress dulled. Equal pay for equal work, between urban and rural work, is urgent.

Scientific Labour Management:

The application of management principles to agriculture and industry could not be identical, though the common aim is to reduce the monotony of the chores. This involves a study of income data, of labour requirements in agriculture, of scope and effect of mechanisation, as also of job analysis. The objectives, in brief, are to achieve the equitable distribution of various types of labour as between the different operations, and enterprises, the elevation of the status of labour, and the management of the transient labour force. To equate wage levels, in due consideration of the work assignments, is another worthy objective. In sum, labour management tries to secure the maximisation of the labour output in agricultural employment. In the first instance, rural and agricultural labour needs to be rationalised. This task is difficult in the farming sphere, for the division of labour is indistinct; hence the only rationalisation possible is the suitability of jobs to men. There is room for the right distribution of the labour force in the various assignments in farming: this calls for a correct job analysis. It may be recalled that the labour requirements are usually seasonal, and fluctuating. The performance of family labour is of relevance in assessing the demand for outside labour, while the exact nature and strength of specialised labour needs to be estimated; this is possible by close and active integration of specialised, expert and other types of labour, for the various odds are of a continuous type, and not distinctive. Also, the application of machinery to agriculture is not on the same plane as in industry: farms are usually small, and do not use big machines, which may be costly. Hence, specialised or even skilled labour is not required to the extent it is necessary in industries. Elaborating this point further, one discovers that there is disparity of income between the agricultural and the non-agricultural groups. Comparisons of income levels as between the two sectors are not encouraging in the present state of agriculture: hence consumption levels have to be on unequal planes. In fact, it is difficult to secure a workable basis on which to make the comparisons. Even industrial incomes in the rural sector are not on the same low level, as the agricultural earnings are. Income data would not prove to be very useful in this respect. But one point needs be noticed: these earnings are not the result of scientific management. And, ultimately comparisons have to be based on the income data, for agricultural incomes must, after all, be compared with those in the other sectors. But, at this stage, the limitations of this analysis must be recognised.

Work Simplification:

Mechanisation may prove unsuited to agriculture, but simplifying the various chores may not. There is, usually, a time lag between developing a new productive technique and adopting it. While industrial engineers have made special studies in application of the techniques in their own sphere, this is not true of agriculture. There are wide variations as between different farms, and their operators. The aim is to eliminate all unnecessary work, and to do it most effectively. Another one is to use tools and equipment in most economical and convenient combinations, so as to raise production, for if equipment is not correctly employed, work gets complicated, instead of being simplified. Next aim is to standardize the improved work methods, establish the correct and practicable ones, and above all, apply the economical methods of work, and techniques of accomplishment. The peasant's —and also the policy-maker's—aim should be to attain parity with industry, for in industry work simplification has been carried to its logical conclusion. And the parity could only be achieved through work simplification. But the adoption of these procedures would mean some research into their application to farm work. Existing methods should be appraised and their effectiveness evaluated from the output angle, with reference to jobs in agriculture: this is done in order to hit at the most efficient methods. Comparisons, may therefore, be made, objectively, on the basis of farm input-output relations, consequential upon the adoption of work simplification: proven methods may be synthesised, and the unproductive ones weeded out. For this purpose, test checks need be made. Labour consumption on different jobs should be estimated. The production rate on a certain job is determined by the method of work and the efficiency of the operator, as also the rate of work activity. The direction of the work simplification is towards easier, better and more remunerative work, instead of the harder and the more arduous. It is done by changing the movements of the worker: making them easier or reducing them, or eliminating some of them, or a combination of all these reduce labour consumption. Various labour-saving methods are used by the peasants, but they have to be carefully integrated: superfluous movements are eliminated, greater safety is assured, better working of human and machines attained, change in layout and use of the equipment brought about, and job analysis done. The consideration in all these methods is to minimise physical chores, and simplify the routine jobs. Even in the sphere of marketing and processing, work simplification could be brought about. The whole thing centres round the dynamism of job analysis, and aims at adequate performance: to sift the best method (the simplest), evaluate it and improve it still further with a view to maximising agricultural production. Ultimately, work simplification might lead to mechanisation; even immediately some machines may be introduced. Mechanisation in the agricultural production is distinctive in character—this has been pointed out above in the introductory chapter. Agricultural chores may be divided into two kinds: indoor and outdoor. In the indoor jobs, mechanisation is possible to a great extent, while in the latter, it is work simplification that is helpful. If blindfold mechanisation is launched upon, it may raise more problems than it sets out to solve—in the backward and labour-intensive systems, it may displace some labour. All through this analysis, the labour aspect is being emphasized, for the output is calculated in terms of labour units, and the returns to the labourer determine his living standards. Generally speaking, the peasants have been seeking better, productive and simpler ways of doing things. Those methods of work simplification would be adopted as raise productivity in the short run. Mechanisation, in this context, raises different problems in different countries: it has special significance in regions, where labour has been inefficient and land under-exploited. Not that Nature is niggardly, but Man has been inefficient. The use of the expensive machines would mean heavy costs, which the small farmer can ill-afford. There is also the problem of the availability of skilled labour. Machinery pays only in adequately-sized units. In short, it is the economic experience that counts for in the employment of mechinery, which might result in some unemployment, especially in the under-developed and backward economies, for the profits made out of the employment of machines are not ploughed back for agricultural expansion. This fact, coupled with the high pressure of population on land, and the labour-intensive character of the enterprises, precipitates unemployment. Thus increased productivity, and its benefits, may be negatived by the evil of rural unemployment. That has been the experience of mechanisation of agriculture, even in the West, for adjustments take long to neutralise these disadvantages. True, that this unemployment may be transitional, but the ultimate effect of this "improvement" in the methods of production may not augment income, (nor the levels of consumption), for the inflated produce may not sell remuneratively, unless other sectors also progress. The labour-saving devices, including machines, may only displace labour, who are the ultimate consumers of the agricultural products: this may prove to be a process of impoverishing the purchasers. Therefore, it is the labour-simplifying devices that should be selected, instead. In the West, the problem is to counter shortages of labour: hence labour economising methods have to be evolved, but that is not true of all economies, especially the backward and under-developed ones. Economic progress need not always be a function of mechanisation; work simplification could also achieve the same objective, and probably much better. for it promises better utilisation of the labour force, instead of creating unemployment. Doubtless, if large masses are under-employed, there could be no increase of the national dividend. It may also be understood that work simplification need not culminate in mechanisation though it may ultimately save some sort of labour. This "displaced" labour may however be absorbed by the extension of agriculture, and the expansion of allied activities. There may still be some time lag: which the policy-maker should reduce as much as possible. In *conclusion*, it may be said that work simplification need not mean mechanisation, that if it displaces labour, it may be possible to reabsorb it in the economy, provided the economy is taken as a whole, *i.e.* other industries and avocations.

Urbanisation Effects:

The effects of the urbanisation movements in the several types of economies are studied: in the mature, the transitional, the restoration and the embryonic economies. Urbanisation is with special reference to the low-income farmers, who form the labouring classes. Urbanisation is a unique process in each economy. In the *mature economy,* the real income of the farmer approaches the optimum utilisation of the technical developments. The social and the private net products are, both, maximised. Few labourers expect to gain by alternative employment, which they may seek, as a result of some economic friction. In the long, long (secular) period, there is brought about autocorrection in the economy: balance as between the two sectors is achieved by the dissemination of information and knowledge among the operators, and greatest benefit would accrue to the low grade income people. In the *transitional economies*—where the process of technical change is still on and is ushering in economic progress—specialisation grows first by occupations and then by regions. Still, there is increased emphasis on the direct appropriation of the economy: the social costs of technical advancement may be high. The tendency to urbanisation is marked. The social net product increases, as a result of the technological expansion in agriculture. The economy is often undergoing a change, even fundamentally speaking. In the urban (and non-agricultural) sector, costs would tend to fall, while in agriculture, they may not so rapidly. There arises a discrepancy between the two: and, there may be a shift from the rural to the urban employments. In an economy, which has been shattered by *castastrophe* of a national magnitude the energies of the people are directed to *restoration and rehabilitation*. The economic resources and energies of the people are directed to maximising the social net product. The process of restoration in the rural sector is slow: and the process of uplift of the low-income families very gradual. The special priorities relate to the rehabilitation of the uprooted families: there is the progressive regearing of the economy, leading to *restoration* and *reconstruction*. Migration to the towns may be unhelpful, for that would deplete the rural labour force. The authorities would try to resuscitate the economy, instead. The manpower should be taken as a whole and the economy treated not in segments, but as one. In the course of time, income differentials tend to ease out. In the *embryonic* economy—where economic developments are of an elementary nature—the process of development has just started, while capital formation (on which hinges technical advancement and economic progress) is painfully slow, and capital goods have to be imported, from abroad. Institutional impediments, too, hinder economic growth. The only alternative for the low income groups is to migrate to the towns, in search of employment opportunities. Hence, disparities between the urban (and non-agricultural) and agricultural (and rural) incomes are quite pronounced. The way out is to accelerate the process of economic growth, and to bring about a balance in the different sectors of the economy. With the gradual ruralisation of industries, and the urbanisation of the low-income groups, disparities might be reduced but this is the ultimate trend. The problem is rather complex: it may be pointed out that the main effort has to be made by the economies themselves, and not by external agencies dependance on whom is to be minimised. It is well nigh impossible for the advanced nations to give unlimited assistance to restoration and embryonic economies. In short, economic reappraisal must be done in order to better the lot of the low-income groups, and to improve the structure of the agrarian economy, too.

Labour in Agriculture:

Most of the labourers in agriculture are landless, and casual, and migratory: they should be stabilised, allotted lands, and decasualised. Generally, the agricultural labourers are hesitant to migrate to the towns unless under duress. The labour in agriculture is also untrained and unskilled, even below the levels required for efficiency. In the backward countries, especially, their lot is abysmal. Tenants are labourers in a special sense. The second class of labourers are the land-less labourers: their principal and hereditary profession might have been agriculture, but it is not so any longer, for they have lost their lands. The next class comprise agricultural serfs, who are at the bottom of the social ladder. Serfdom is dying out in most parts of the world, still it is found in traces, in certain regions, where the relics of feudalism persist. Forced labourers figure separately, they have to work under the threat of eviction from the village, or from land: in return for their work they do not get any wages, but just their rights to live. Between serfdom and forced labour is a state of semi-serfdom or illegal exactions, imposed on the labourers. Agrestic serfdom, in its various forms, persists in the backward, embryonic economies in traces. Dynamically speaking, agricultural labour behaves in a manner distinct from that of industrial labour. In industry, trade unions protect labour, but not so in agriculture, where custom prevails, to give each labourer his traditional place. The lot of the lower classes of labourers is very bad indeed. Growing consciousness among them, and the efforts of the State and other agencies hold out the promise of their betterment. Difficulties are paramount in the way of agrarian (labour) legislation, for the peculiarities of this sector. Still, legislative effort is being made in the matter of uplifiting them. Land is being allotted to the landless, while agrestic serfdom is being wiped off. In this connection, mention must also be made of the *theory of reorganisation,* which recognises that by reorganising rural labour, their lot could be improved. The supposition that farm life is isolated and exclusive, is not at all tenable under modern conditions, for integration of the various aspects of life, has proceeded apace, due to the spread of the urban and the industrial influences. According to this reorganisation theory, agricultural labour and its organisation should be fitted into the social and the national fabrics: farm labour should not be neglected, but given representation on various legislative bodies. A compromise formula would be to let farm labour develop in an evolutionary manner: under expert direction. Labour welfare is an important aspect of the problem: all welfare proceeds to remedy the ills of the class, for which it is intended, and welfare activities should be of a relieving nature, though they should be selective and discriminatory. All such moves should provide relief to the labourers, for whom they are intended, in the case of agricultural labour, the relief should be of an immediate nature, for their problems are desperate. Again, welfare should be tangible, and not invisible, so that the labourers could appreciate the same. And, the principles underlying this type of work should accord to the duties of the labourers, who should thus be enabled to discharge their obligations par excellence. And lastly, these activities should be of an evolutionary nature, and gradual, not revolutionary for they might crumble down, or their impact fade away, soon after, the external pressure is lifted.

Agricultural Labour:

The problems in this section have been varied, ranging from the nature of rural (and agricultural) work to its simplification. While exhaustively dealing with the application of the principles of scientific labour management to agriculture, its limitations were pointed out. Work simplification—in preference to mechanisation—is laudable, for it does not land the economy or farmers in the complications of unemployment. The problem of displacement of labour, consequential upon mechanisation is also discussed threadbare, and it is established that work simplification reduces stress and strain, and though displacing labour eventually, it would be possible to re-absorb that labour with the expansion of the economy. Methods of resettlement are underlined. The influence of urbanisation on the agricultural labour, especially the low income sections, is traced at length, and is found to be progressive: how this impact is operative in the different economies is studied. The agrarian movement is a two-way traffic, the sectors are affected mutually, though the farmers migrating to the town do not always gain, while the urban worker is a misfit in the villages. In viewing the picture from the overall angle, it is discovered that there are five important categories of farm labourers: tenants, landless workers, serfs, near serfs, and forced labour. The dynamic aspects of the problem are studied: the future seems to hold a bright promise for them. In the last instance, the principles underlying labour welfare are detailed: these should be borne in mind for

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illiterate, ignorant, as the agricultural labourers are, they are very sensitive to external stimulii: the welfare worker must wear a sympathetic garb, otherwise, he might rouse their suspicions, and they may grew apathetic to him.

SUMMARY AND CONCLUSIONS:

The scope of this chapter has been restricted to a discussion of the human factor in agriculture, which is the most important production agent. The nature and character of labour problems in agriculture is different from that in industry: during the rush season, the demand is intense, while in the slack and the dead seasons, it shrinks: this demand also varies from region to region and has to be studied locally. The extent of the division of labour in agriculture is very meagre: this fact limits the employment of specialists and experts in this sector. Mechanisation has also been gradual in its application, especially in the backward regions. The problems of labour requirements in agriculture are of a distinctive nature: they are seasonal and supplementary. In the agrarian economies, the Malthusian law rules: even in the agricultural sectors of the mature economies, too, it applies: hence the question of labour shortage should not arise. In the mature economies, labour shortage is felt, as agriculturists migrate to the towns, in search of more lucrative jobs. The movements of the farm population could be directed by wise and discriminate administration, so as to bring about an equilibrium in this situation. The farm labour market is mainly local: hence the peculiar complexion of this market. This means that the problems of labour are divers as also complex. The largest part of the agricultural labour is devoted (directly and indirectly) to pursuits of cultivation. Again, rural work is something out of which certain satisfactions are derived, for without compensations, the agricultural worker could not remain tied to land in view of his low remuneration. Economic disparities do persist as between the rural (and agricultural) and urban sectors: these are enumerated above at length: they reflect themselves in the various labour problems arising there. Also, the scope of labour management, in scientific terms is very much limited, though in the advanced countries, efforts are being increasingly made to apply these principles to this section. Still, agricultural jobs could not be standardsised, nor agricultural work rationalised. The impact of work simplification on agriculture is to raise its productive index without precipitating any labour problems; most cultivation chores could be simplified, without mechanisation. Mechanisation in agriculture has not been advocated, because the pace of economic development is usually faster than that of absorption of displaced labour, especially in the sphere of farming. Labour could be absorbed by expansion of agriculture, or extension of allied activities. Urbanisation does not improve the lot of agricultural workers; in fact sometimes it hits them. And, the *conclusion* is that with growing consciousness, both among the agriculturists, and the administrators, their lot is bound to improve: but it will take quite some time for legislative effort to fruit.

Human Problems of Labour:

Labour is truly a human agent of production, distinct from others in that it is for this factor that the enterprise is run. Man is vocal, has likes and dislikes, and would like to better his lot. For the success of the farm enterprises, therefore, it is imperative that this agent should be humanly treated: and welfare activities should be multiplied. Human basis of agriculture should be strengthened, in order to strengthen agriculture itself. Lacking as yet is the correct assessment of the role of this factor in agriculture, from the point of view of the community. Labour activity may have to be regulated, and the conditions of work to be controlled, in the interests of both Man and Society. The planner faces a difficult task when seeking to improve agricultural labourer: surplus labour force must be drained off to other avocations their living standards raised; productivity improved, skill and training imparted, complete integration of the various sectors effected, and, above all, rural labour must be awakened from its age-long slumber to respond to uplift measures.

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SELECT QUESTIONS AND EXERCISES:

1. Assess the dual role of the farmer-labourer. How does he integrate his function?
2. Describe the nature of agricultural jobs, and point out how they affect the distribution of labour among them in agricultural work?
3. What factors contribute to the efficiency of the agricultural labourer?
4. Determine the range of effective labour supply in agriculture, in backward economies, in the light of the laws of population of Malthus and the Moderns.
5. Underline the distinctivo traits of the farm labour market
6. Why does the farmer cling to agriculture, inspite of his low earnings?
7. Apply the principles of scientific labour management to Agriculture.
8. Distinguish between work simplification and mechanisation of the agricultural chores. Which policy would you advocate, and why? Give reasons.
9. Follow the effects of urbanisation in the various economies.
10. Review, in brief, the various problems of agricultural labour.

CHAPTER VI

THE PRODUCTION EFFORT

Capital and Equipment—Distinctions and Definitions: Some Classifications: Investments on the Farm: Efficiency and Productivity: Economics of Farm Machinery: Agricultural Capital. Apportioning Productive Factors—Capacity and Efficiency: Choice of Factors: The Law of Variable Proportions: Farming Costs: Practical Implications: The Productive Factors. The Unit of Production—Farms and Farmers: Determinants of the Size: Size and Scale: Unit of Organisation: The Dynamic Aspects: Unit of Farm Production. Summary and Conclusions—The Production Effort: Select Questions and Exercises.

THIS chapter delineates the production effort on farms, the role of capital and equipment, the apportionment of the productive factors, and the size of the unit of production, in agriculture. While much capital and equipment are not used in farming, its role is quite important to its enterprises. In this connection, the importance of farm machinery is to be gauged from the practical angle. Other issues refer to the proportions in which the productive facturs are to be combined in farming: the law of variable proportions is once again invoked in this connection. In discussing issues about the unit of production, a distinction is made between the various types of units: of production, of operation and of investment; and in the light of these classes, the *best* unit of production is indicated. The argument is now analytical, and not merely descriptive, though certain distinctions are necessary to clarify thought.

CAPITAL AND EQUIPMENT:

The role of capital in agricultural production is apparently not so important as it is in industry; still it is indispensable to production. From the agricultural angle, capital and other agents of production are to be distinguished: while their supply is relatively rigid, that of capital is flexible. Capital is money, invested. It may also be "specific". This distinction is borne in mind when annual farm valuation is made. In the economics of production, it is capital that is important, but in the economics of financing, it is money that has relevance. The argument below will be ushered in with certain distinctions and definitions, necessary for clear thinking, and for the better appreciation of the the different forms of capital and equipment. Attention is next focussed on the farm investments—buildings, cattle, and equipment or machinery—and their economic aspects stressed. The subject of farm machinery is thrashed from several angles, and its limitations and application also brought out. An analysis of the dynamic factors is also attempted: the application of modern equipment to farming and agricultural production prospectively speaking is given in the last paragraph below.

Distinctions and Definitions:

The term "capital" is so much misunderstood that there is need to redefine it, with reference to agricultural production. Its various shades of meaning have to be well understood. The terms: money, capital, and investment are to be distinguished in their implications, for the economic terminology conveys a meaning different from that understood in ordinary speech. In the orthodox economic language, "Land" refers to natural and indestructible factors of production which could not be changed in their location. Capital, on the other hand, is reproducible and supplied by Man. While land is indestructible, capital is not, for it can be destroyed. Capital, like land, is subject to considerable depreciation and it ultimately needs replacement, but land cannot be replaced. Equipment covers all the productive instruments of production, excluding labour: the various produced agents of production are included in this category. But capital is also available in fluid state (*e.g.* money), while the concrete capital is what equipment refers to. *Money* is expressed in pounds, rupees, and dollars, while capital is mainly equipment, or reserves for the emergencies. Capital may also convey the sense of funds for investments. *Investments* is that capital which is sunk in certain enterprises, while equipment is specific capital, invested in rural and agricultural enterprises. *Capital* is an economic term, while *equipment* is borrowed from engineering: the latter term, refers to the specific instruments of production, while the former has broader implications. From the national angle, it is *capital* that matters, for it is what the farmers employ. From the production, standpoint, it is equipment that is of relevance, for it raises the levels of productivity. The reader must guard against the everyday use of these terms and acquaint himself with the economic implications of the same, for these terms stress its different aspects. The limitations of economic terminology and language are notorious; still, it is sufficiently exhaustive, and does help in the clarification of ideas.

Some Classifications:

Capital is classified on a functional basis, but not in an exclusive manner. The classification is not utilitarian, for the farmer-operator does not take the various classes of capital into consideration: it is only the analyst that has some use for it. *Fixed* or *permanent* capital is that equipment that could be used again and again, and is durable, while *circulating* capital (also *working* or *operating* capital) is used up in the operations of farming. Examples of these two classes are machinery and manure, respectively. Livestock, however, could neither be considered as fixed nor as circulating capital: hence this classification is not convenient. Next categories are *movable* and *immovable* types: the former includes buildings, while the latter, movable machinery. Again, this grouping is not exclusive, for certain plants may be movable as well as immovable. *Stock* and *crops* relate to the organic types of capital: *stock* being livestock and cattle, while the *crops* connote what they do in the everyday language. *Productive stock* is for direct production, while *work stock* is for haulage and power purposes. *Stock-in-process* is that which is being reared for the market. In this manner, stock is not a permanent asset, but subject to fluctuations. *Requisites* and *materials* are the next proups: these are all those things that, though essential to the production process, are not of an enduring nature, and include feed, manure and fuel. The *materials* of production are highly perishable and consumable: they could be categorised as *feeds* manures, and miscellaneous: these are styled as *consumable capital.* Machinery and capital goods are also important classes of capital: though a form of equipment, these are yet to be regarded as distinct, and specific forms of it. In *capital* are classed *goods of the second order*: they aid the process of production. It may be stressed that capital goods are indispensable to farm production, while machinery could be dispensed with, though the modern trend is toward increased mechanisation. *Farm buildings* are another distinct category of capital: they have the longest range of investment, and are therefore not easy to disinvest. They are non-specific type of investment, for they are seldom constructed for the purpose for which they are used and their value declines with wear and tear: these have to brave the inclemencies of the weather. To sum up, capital could be classed as capital, equipment, machinery, stock, requisites and buildings, conveniently.

Investments on the Farm:

Capital is invested in either *fixed* or *floating* form. From the peasant's viewpoint, it may be better to class it as *landlord's*, and *tenant's* capital. While this categorisation is self-explanatory, it may be pointed out that in the latter, the day-to-day investments should also be included. It is characteristic of agricultural investments that the ratio of permanent capital to working capital is high; another trait is that the investment per business unit is not high, while the range of investment is rather wide, but its assessment is difficult. *Fixed* and *floating capital* or *sunk* and *fluid capital*, are those forms that are invested in specific forms, or are still in the form of money. Buildings are different from other types of investment: their depreciation proceeds regardless of use, hence their maintenance and repairs present special problems.

Their value lies in what they contribute to the process of production. Usually such buildings are constructed as may be used for a number of purposes, but specific ones could also be built. Cattle and livestock rank next in importance: in case of livestock, the input is their feed, while the output is their service in farm production; and their efficiency, the input-output ratios. There is a difference between livestock and machinery: the former appreciate till full-grown, and then begin to decline, while machinery depreciates, if not maintained properly. Productive stock, also, appreciates and depreciates in the same manner as work stock; the main point is that productivity not used is lost, in the case of cattle. Equipment and machinery are important types of farm capital. The productivity of equipment is of an indirect nature, while that of machinery is of direct nature: this is measured by the methods of *margins*. Machinery enables labour to exploit land better; assists in the protection of plant and animal life, makes possible the raising of superior forms of produce, and lessens boredom and fatigue. Its initial costs have to be taken into account, as also its maintenance and renewals and expenses. Same could be said in the case of machinery, except that its use value is to be figured out: optimum use should be ensured. In other types of investment, feed, crops (standing and harvested) bonds, and investments in co-operatives may be considered as the variants.

Efficiency and Productivity:

Capital goods vary in these two measures. In this context, feed and labour are the capacity measures, while the production per unit is the efficiency, and the output is the productivity. *Digestive officiency* refers to the feeding capacity of the workstock, and the *economic efficiency* to their proper efficiency, as in economic measures. Also, there are wide variations in the capacity and efficiency of different types of equipment: this is due to the differing suitability of different machines. Efficiency is one of the major determinants of productivity. The right type of capital, equipment and stock, if employed for the proper kind of productive activity, would yield optimum results. The productivity of capital could be measured in terms of the net addition that it makes to the total production. Greater productivity usually does result from improvements in machinery and stock. But the application of machinery is limited by the suitability and cost to the farm operations: the problem is to fit the size of the machines to the various operations: optimum productivity is the aim. In respect of the determinants of efficiency, suitability ranks first, followed by continous employment, right form of capital investment, capacity to reduce the recurrent costs, while the costs of maintenance and the rate of depreciation are only indirect determinants.

Capital goods differ widely in their range of efficiency: earlier machines were less efficient, while the modern types are very highly so. In the case of machinery, its supply could be increased indefinitely, but not that of stock, whose range of efficiency is, however, very wide. The range of efficiency of machines and equipment depends upon their types, and the skill of the operators. The range also differs with the *requisites* and *materials* of production. For the farm buildings, this range is fairly wide, as that depended upon their use. In sum, the efficiency and productivity of the capital goods, (their various forms, as enumerated above) is varied and wide in its range. Productivity could be raised by improving the capacity and the efficiency of the capital goods. The capacity and efficiency of land is rather rigid and not possible of considerable improvement: this is compensated for by the increase in the efficiency and capacity of the capital and equipment used.

Economics of Farm Machinery:

Thought in the matter of adjudging machinery has progressed far beyond the initial fascination for its indiscriminate use. The inputs in machine operation could be classed in two groups: those connected with machine operation, and those connected with its fuels etc. Depreciation is by far the major cost: the total costs may be spread over the life span. Hence the input factors may refer to *maintenance*, *spread*, and *insurance* (in order to cover the risk factor). The types of machinery may be general, or specific, costly or cheaply or moderately priced, and new or second-hand. Factors taken into consideration are cost, quality, performance, suitability, employment, and the nature of the farm work, when selecting a certain type of machine. Close attention needs to be paid to its size, for unduly large machines may not only be costly but also useless, and may mean high cost of maintenance. If the size be too small, the work may not be finished within the scheduled time: the machine may have to be overworked and it may break down soon. From the theoretical angle, the farmer must equate all the various costs and then find out which is the best size for the enterprise: but it is the marginal (not the total) costs that have to be calculated. The size of machines must suit work on the farms. Servicing, repairing, and maintaining lengthens their life appreciably: the objective is to spend that amount as would give the maximum utility at the lowest cost. Overhauling, renewals, and servicing must be done, preferably in the slack season. Ownership, may be joint, group or co-operative: the same could be said about the operation, and the distribution of the working type: formal agreements may be necessary beforehand. Should the farmer mechanise or not? And if he chooses to do so, what are to be the limits of mechanisation? These questions could be answered on the basis of some data, a comparative operating statement, and the budget: the balance between the receipts and the expenses, and how these would be influenced by the use of machinery is the decisive factor. This has to be set against the saving in respect of labour and power. Hence, mechanisation has to be selective: limits are imposed upon by the nature of the enterprise. Advances in the application and evolution of farm machinery and equipment have been rapid: it has been standardised, now. The character of the farming has been now changing from labour intensive to capital intensive one, while greater emphasis is being placed on the equipment aspect of agriculture. There has been a phenomenal increase and improvement in the technique of agriculture, and continuity in the mechanical tasks. All-purpose machines have been evolved now, and that is tending to make the technique more manifold now. Mechanisation has been applied to tillage with profit: this has increased productivity and lowered costs. Machines have been evolved to suit all types of lands and holdings. New developments in technology have been responsible for stimulating mechanical innovations. Productivity has generally speaking increased with the growing mechanisation of agriculture: in dairy farming, the popularisation of warm milking parlours has led to an increase in the yield of milk. Machinery is also used in drainage work, and in processing industries. Prospectively speaking, the increasing application of machinery (if it does not displace labour) often results in raising agricultural prosperity, and increasing productivity. New designs serve to replace the older types, as being more productive and less expensive. But this argument is applicable only to the advanced and mature economies, for in the backward economies, machinery is limited in its sphere: the process of agricultural reconstruction in these countries need not, however, be a halting one, in view of the growing consciousness about progress. The cultivation systems need not wait till they qualify for the increased application of the new techniques.

Agricultural Capital:

The above analysis has been of great significance from the theoretical viewpoint. Land, capital and equipment, though different, are interlinked in substance, from the farming angle. Agricultural capital is classified into fixed and circulating, and equipment into movable and immovable types. Broadly speaking, it is classed into capital, stock, buildings, equipment, and machinery. Miscellaneous kinds of capital investment were also dealt with: the role of the agricultural paper and bonds is stressed. The problems of efficiency and productivity of capital in the forms of machinery are next discussed: the functions of equipment, the range of efficiency, and the relative importance of these concepts is underlined. The economic aspects and implications of the farm machinery—its various types, and sizes, its maintenance and ownership, and finally the limitations and extent of mechanisation —are discussed in details above. In this chapter, the focus is on production, and not on labour, as in the last chapter. The dynamic aspects of mechanisation have been examined above, followed by an exploration into the impact of progress in agricultural technique, the application of modernised equipment to land cultivation, and the improvement of productivity as a result of mechanisation. The perspectives in respect of equipment and the application of machinery to agriculture are also adjudged in the last paragraphs, and the role of mechanisation in the tillage system, as it be. Though the issues discussed are of a controversial nature, yet the conclusions drawn were of a non-controversial nature from the analytical viewpoint: it may be stated that the role of capital is increasing now.

APPORTIONING PRODUCTIVE FACTORS:

The subject matter of this section is of importance from the analytical viewpoint; the problems of the combination of productive factors is of interest to the economist and the peasant alike. Productive factors are scarcer in agriculture than in general production: land has absolute limitations in point of both its quality and quantity. And it is the most indispensable factor, to which the other factors have to be combined. The farmer's aim is to secure the optimum combination of the productive factors: the maximum (net) output for the minimum (net) input, or the net investment to yield the highest productive results. Optimum combination is one which results in optimum production. The problem is discussed below from the angle of achieving maximum production at the least cost. Distinctions will be necessary between the various concepts; this will be followed by examining the argument for the choice of the productive factors. A study of the Law of Variable Proportions is again made in the light of this analysis. Farming costs, in their impact upon the productive organisation and also with their practical implications are scrutinised. The section is rounded off with a summing up of the main points.

Capacity and Efficiency:

The productive factors vary in their capacity and efficiency, and therefore, in their productivity. Because of these differences, the productive combinations have to be varied. In their capacity, too, the agents differ. Land, for instance, varies greatly in its capacity to absorb units of capital and labour, with which to produce optimum results. Same could be said about labour and capital. Not necessarily would the high capacity factors raise productivity, for efficiency has also to be considered. *Efficiency* is indicated by the ratio between input and output: it is measured in terms of value of the product per unit of other factors, when combined in an optimum manner. The relation between capacity, efficiency, and productivity is intimate; *capacity* refers to unit input, *efficiency* to unit output, and *productivity* to total output. Physical productivity is often measured in terms of physical quantum, when the factors are immobile, while it is measured in terms of price if the factors are mobile. In the former case, differences in location are accounted for: hence this basis is suggested. Possible it is that a factor with high effciency may have low productivity, if it is combined with others of low capacity and efficiency, or if its own capacity is low. Higher efficiency and higher capacity factors should be combined with similar factors, and not with those of lower grades. Variations in the efficiency of different factors arise out of the differences in the amount of the physical product per unit of the others factors, combined with it. Differences in human efficiency and capacity, too, account for variations in the productivity of the agricultural enterprises. Gradations of land, labour and equipment should be taken into consideration as determining the efficiency and the productivity of the enterprises. In this sector, remarkable gradation exists as between the different factors: if land is of low capacity (or efficiency or fertility) more of it would have to be used in order that it may attain the same productivity as the other plots. Agricultural economy, to be productive, thus calls for a combination of the most efficient and capacious units. Again, observation has it that efficiency is a relatively fixed factor, and not much alterable, while capacity could be increased. This holds very true of land, whose capacity could be heightened, by means of fertilizers. In the case of labour, though both could be raised, it is capacity that is easier to lever up. Same could not be said of capital and equipment, which have fixed capacity and efficiency, especially when they are specific. Productive differences, therefore, arise out of differentials of capacity and efficiency. Those grades of land should be selected, as correspond to the efficiency and capacity of the farmer, and also of the other agents of production. Greater care has to be taken of soil, which has vast variations in the grades of efficiency and capacity. In apportioning productive factors, *net productive* returns should be taken into account, for the *total productive* returns matter visibly but not analytically. Judicious combination of the productive factors maximises returns. Productive combinations in agricultural enterprises are selected for their results. A particular combination or apportionment of productive factors may be more fruitful than another, and this will be preferred to that. The formula appears to be that factors of equally high efficiency and capacity may be combined, for in unequal combinations, productivity could not be sustained at a high level, although initially it may be raised. Hence, a productive combination is one which combines factors of equal efficiency and capacity: this alone will eliminate waste and ensure good utilisation.

Choice of Factors:

Although the above considerations may generally hold good, the combination of specific factors calls for different analysis. The major determinant of the cost of the productive factors is their net returns, while substitution among factors is also restricted due to their specific-ness. Another effort is to counter the Law of Diminishing Returns. Cost comparisons are also necessary in the combination of factors and their choice. In the first instance, the nature of the factors of production is taken into account: whether they are specific or non-specific: the former could be used only for specialised jobs, while the latter for all purposes. The *use range* of the specific factors is therefore limited, hence their combination with others is restricted. Again, the capacity and efficiency of these (specific) factors is rigid. Another consideration relates to the *divisibility* and *indivisibility* of the productive factors. The latter could be adjusted without waste to others, but not so the former: farming is however an industry with a predominance of indivisible factors, therefore caution is required in the choice of the other factors. Next are the twin considerations of *availability* and *substitutability*: some of the factors may be non-available, while others may be so specific that it may be impossible to find substitutes for them. The law of diminishing returns operates because of the non-availability of some factors, when the process of the expansion of the enterprise is undertaken, while non-substitutability of these is also another major factor responsible for its operations. Land for instance is unavailable in larger quantities, nor is it substitutable by any other factors. Cost comparisons have to be taken into account: the farmer tries to choose the factors with the lowest costs. But these costs are difficult to assess accurately, at least by the farmer. In a dynamic economy, cost comparisons may be unreal and hypothetical, while if the combinations have to be rigid, they will be of little use. Difficulties arise, when wrong expectations are framed in respect of certain factors and their combinations. The farming costs are difficult to estimate—these estimates seldom attain precision. In the light of all these considerations, is the optimum combination arrived at: it is one which would secure the fullest exploitation of the factors of production as also contribute most to the productive act. It may be difficult, indeed, to decide upon an optimum combination, for theoretically, a host of factors have to be reckoned with in arriving at this optimum combination. The size of the producing unit, too, influences this optimum, though it is not the only factor. The optimum does depend upon a correct selection of the grades of efficiency and capacity of the productive factors.

And the least cost combination is to be preferred to any other. Ultimate choice, therefore, depends upon what factors of production are available and usable: specific, or non-specific, reproducible, or irreproducible, abundant or scarce, substitutable or not. Usually, the specific factors are less suitable for agricultural production. Divisibility adds to economy and adaptability: while their scarcity stresses the need for economy. The irreproducible factors, (*e.g.* land) play a dominant role.

The Law of Variable Proportions:

This law is the basis for productive combinations, and the apportioning of the productive factors. In agricultural combinations, there need not be definiteness nor rigidity. The price-cost combinations do enter in. This law elaborates the implication of *variable proportions*, as applied to agriculture. In fact, there are three laws of returns: increasing, constant and decreasing returns; these have already been studied, in the discussion of the law of diminishing returns, above. To recapitulate, the law of increasing returns operates, when Man is able to control the productive process, and guide it to the desired ends; and the law of diminishing returns, when nature is dominant in production, and Man unable to control it effectively. The law of constant returns is said to prevail, when Man and Nature balance. These laws of returns arise out of input-output relationships. The law of increasing returns operates as long as the optimum combination is maintained, for at this point, the fullest exploitation of the indivisible, irreproducible, unsubstitutable factors is maintained. The law of constant returns is also operative in agriculture, for it applies to the processing industries. In the intensity of culture, land is of prime significance, for its supply is relatively rigid, as even the reclamation of land is a slow process. Hence, more intensive cultivation is the rule in the modern economies. Land is quantitatively static and the problem is how much of the other factors be combined with it in order to maximise production. This problem can be looked at both from the organisational and the national angles, so that the factors of production are correctly utilised. In the initial stages, there may be *increasing*, then *constant*, and finally the *diminishing* returns. Where a certain law operates, and, at what stage, determines the intensity of culture. Only one enterprise could not be taken into account, but their whole range. An allied problem is that of the selection of the type of organisation. The intensity of culture is decided upon by the geographical factors, and the character of the soil. Often there is inter-substitution between labour and capital: labour could be economised by the use of capital (machinery). And, inter-substitutability aims at raising the productivity. The least productive methods may not be preferred, the most productive ones may be selected. Other things being equal, this choice would depend upon the factor costs. At the optimum point, all the economies of production are exhausted, and beyond this, there are constant returns, which are followed by diminishing returns, with further expansions. This combined trend—which operates on the same enterprise, or the same farm—is known as the law of variable proportions. The process of expansion and investment may continue till the highest average net return per unit is realised: this average increases till the operation of the law of increasing returns, and then it declines, neutralising this trend. This law is more useful, for it is easier to calculate the average returns than the marginal ones. Usually, the net average return rises with intensity of cultivation: but this may not be so in Batai (Metayage) for with increased intensity, the rent may also rise. In sum, the law of variable returns is the dynamic aspect of the laws of returns, all of which can apply to the same piece of land.

Farming Costs:

It is the costs of production that determine the intensity and the range of production: costs are thus related to production and output. Analysis of farming costs reveals that the point of highest net return seldom coincides with that of the lowest cost per unit. Cost data has to be split up further to appreciate the implications better. There are many kinds of costs: total, marginal, average, physical, money, cash, historical, current, variable and output costs. The *marginal* costs are those that are incurred in an incremental fashion by the expansion of a unit. The *average* ones are found by dividing the total expenses by the units produced. The *total* costs are the total of costs incurred for the enterprise, while the *single-input* costs refer to single items, as labour etc. Other kinds of costs are not important at this elementary stage of analysis. The cost data is used for triple purpose: for farm production, for framing price policies, for measuring the economic changes. To the combination of productive factors, it is relevant, and suggestive of the ways and means of economising in production. By a comparison of the marginal costs with marginal receipts, the farmer is able to secure maximum production, which is at the point of their equalisation. The data also provide a clue to the selection of the productive factors to be used on a certain farm, or an enterprise. It also indicates the best combination to be adopted. As to how it helps the administrators, in framing price policies, is to be discussed in CHAPTER VIII, THE PROCESS OF PRICING. With economic change, the costs tend to fall, and the operation of the law of diminishing returns is neutralised: unit prices are compared to costs and conclusions accordingly drawn. Costs do guide the farmer in his selling programmes: Sales give gross returns from which the net returns may be calculated for comparison with the marginal costs. Three types of costs may now be distinguished: *historical*, *necessary* and the *fair-price*. The price level fluctuates between the *necessary* and the *fair-price* costs, though in the long-run even the historical costs should be covered. In the process of economic change, in a dynamic sense, the costs and prices are indistinguishable. The combined unit costs for a period of time are used for determining the best combinations. Index numbers of changing costs and the related data guide the peasant in deciding upon his production. But these calculations call for scrutiny of the minutest details so as to assess the amount and direction of economic change. The distinction between fixed and variable costs is of relevance to farming: on a family farm, most of the costs are fixed while larger farms have a number of variable costs, *e.g.*, harvesting costs. This distinction is valid only in the short period, for in the long run all costs must be met. From the apportionment viewpoint, fullest utilisation must be done of the fixed costs. In trying to secure the best out of an enterprise, the peasant aims at covering the variable costs remuneratively. An examination of the marginal, average and total costs is helpful to him: as long as marginal costs are higher than average costs, inputs raise output, obviously so; and when average costs are higher than marginal costs, additional inputs lower output. Optimum output is that which equalises the marginal and the average costs. But it is the combined effect of the cost-relationships that shapes the combinations of productive factors. Profits are the difference between costs and prices, and the farmer prefers that combination which adds most to his profits. With good calculations, the marginal contributions of the various inputs would always be equal: this is the point of the maximisation of the utilisation of factors. Or the marginal revenues of various enterprises would tend to be equalised: this is based on experience. In many crops, the overhead and the fixed costs form a relatively larger part of the total costs than do variable costs. The effort is to heighten output by increasing the inputs of labour and capital, for land is rigid in supply, though its capacity can be raised. In the case of special enterprises, special costs have to be taken into account: *e.g.*, for livestock, maintenance costs are taken. Inputs and outputs are not assessed for separate enterprises, but for all taken together. Technical efficiency is not necessarily identical with economic efficiency. The aim is to achieve economic efficiency, which is a very reliable index of the economic utilisation of the productive factors.

Practical Implications:

Theory may satisfy the academician, but not the farmer, nor the planner. Certain important practical aspects require detailed study: the factor of emulation, the economic *vs* the technical efficiency and the use-rates of input factors. But no categorical or definite decisions could be arrived at: the system is too complex to admit of precision and generalisation. In the first instance, the peasant is to adjust the technical and the economic efficiencies; the former relates to the output of the various enterprises, while the latter to the productive efficiency of the various investments. Naturally therefore, the peasant will take into account the economic, and not the technical efficiency, for the former is a more comprehensive measure. Another practical consideration is the economic utilisation of the productive factors: as long as the full utilisation of land is not achieved, an optimum combination is impossible. The considerations in this context are: the full view of the enterprises, the margins of profitability, and the proper balancing of the present and the prospective productivities. Next have to be calculated the use rates of input factors: (by dividing the total outputs by the total input at each point of combination): these rates depend upon the nature of inputs, outputs, and fixed factors. More accurately, it is the *use input rates* that matter in agriculture. Precise calculations have, however, to be ruled out: the farmer could not anticipate what his efforts would be able to produce, in view of the hazards of his operations. The most practical way is to make alterations as long as it pays. Uncertainty also exist about factor costs and factor productivities: all factors have to adjust to land. In the peasant's calculations, there are so many limitations: land is absolutely limited, while large quantities of labour may be unavailable especially in the rush seasons, and above all, the farmer's capacity to manage things has its limits. The factor of emulation is significant in the farming systems, for one leader could revolutionise the whole system. A few good farmers could enthuse others, who may apportion their factors in the same manner. Since the farming system is so complicated, the combination of the factors of production is also complex especially when this has to be undertaken with the limited factors at the disposal of the peasant, and when the real income of the peasant does not derive from one single enterprise, but a number of them. His income depends upon his efficiency in achieving the optimum combination, not only of factors, but also of enterprises; to co-ordinate them and maintain a high standard is important but difficult, if sought to be done in the correct proportions, at the right time, and in right places and farms. Even if the farmer were to get all the land he wanted to, he may not be able to cultivate it by the methods of his own choosing; he goes the traditional way, for his horizons are limited. Similarly, in respect of capital and equipment, things are no better, though he could gain by means of emulating the more successful farmers, for in original and scientific management, he is at a discount, being untrained for this.

The Productive Factors:

The principles, underlying the combination of the productive factors have been explored above. The argument is prefaced by making a distinction between capacity, efficiency and productivity, and their role in farm combinations. Productivity differentials of factors and their combinations have been noticed, as also the fact of their availability, substitutability and specificness. An optimum combination is defined in the context of the law of variable proportions, with detailed references to factoral combinations, intensity of cultivation, utilisation of labour and equipment, and the inter-substitutability of productive factors. The whole problem hinges round the issue of farming costs, which are also discussed next. The cost data is studied, with respect to its utility in combination of factors and its part in economic change or its dynamic aspect. While the roles of the fixed and the variable costs, the average and the marginal costs, needs be underlined, it may be established that the combined costs play the decisive role in designing the productive patterns. Next has been examined the relation of the cost to output, with respect of the size of the producing unit. The practical implications of the whole analysis are underlined, as these are important considerations from the pragmatic viewpoint: the technical *vs* the economic efficiency (the latter having a more comprehensive import), the use rates of input factors, (limited by the farmer's ignorance about these various factors), and the problem of the proportioning of productive factors. The non-economic factor of emulation was stressed in this connection, for this impresses the peasant more than any laboratory technique, which often does not even reach him, though the initiative of successful farmers influences him. It is pointed out in the end that farmer's resources are of an inelastic character, and not capable of as much adjustment as those of others. In this connection, it may be maintained out that the discussion of the combining of productive factors is complete only when the problem of the size of the production unit has been discussed: these two are interrelated and bear on each other, for similar principles govern the size of farms. One set of questions has to be resolved in the perspective of the others. The size of the unit of operation may influence the peasants in making the productive combinations, as also in selecting the productive factors: capital and equipment may be more fruitful on a larger farm than on a tiny plot, and greater investments, may, therefore, be made in this respect by the farmer entrepreneur. Economies may be reaped on the larger farms, and in fuller measure; these implications are discussed now.

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THE UNIT OF PRODUCTION:

The problems and the determinants of the size of farms remain to be discussed: the issues are important from the viewpoint of success or failure of the farming systems. Certain farms may be economic, while others uneconomic: usually, the size determines this aspect of tillage. From the angles of the distribution of land and wealth and land-hunger, this problem is of significance. Initiating this inquiry with an account of the types of farmers in relation to their farms, the argument proceeds to an examination of the question of the fragmentation and subdivision of holdings. Next are enumerated the determinants of the size of farms: the problem is discussed from the employment and the distributive angles. The question of the scale of farming is analysed from the investment and the output standpoints. The concept of the optimum unit of cultivation is developed in the light of this discussion. The unit of farm production is adjudged from the organisational viewpoint, while the dynamic factors and forces are not ignored; in the last paragraph the transition from the present problems to the probable prospective positions is traced, with an eye on the trends in farming systems.

Farms and Farmers:

In this respect the problem of the size and the distribution of holdings should appropriately precede this discussion. A distinction between *holdings* and *farms* is of relevance: the holdings are smaller, while the farms are bigger; the holdings may be agricultural or not, but the farms are. Holdings are with respect to the system of agriculture. There are full-time farmers or part-time farmers, depending upon the nature of their pursuit. Other types may be the spare-time, the casual, the hobby, the family (the most important) and miscellaneous others. This analysis deals with the categories that take to farming as an avocation, and as their calling in life, devoting their full time to it, and not merely out of pleasure or hobby. In respect of the size and the distribution of farms, it may be pointed out that it is important to bear in mind area and size of holdings—small and large, agricultural and non-agricultural. To talk of an average holding is misleading, especially in an economy where all types of holdings are found. The concept of the representative holding may be useful in this connection: it could be defined as one which may be representative of farming in an economy. Selecting a representative holding may be largely a matter of scientific sampling. The operation of the laws of inheritance, coupled with land hunger, is responsible for the sub-division and fragmentation of holdings. This trend results in economic cultivation, for the capacity and efficiency of the agricultural system is adversely affected. The law of primogeniture counters this trend, but that is now out-dated.

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Sub-division and fragmentation results in uneconomic agriculture, without in any ways satisfying land hunger among peasants, as amply proved by the experience of the backward economies. The ultimate result is that these smaller fish are eaten up by the larger ones; and the process leads to landlordism: this raises the problems of tenancy and landlordism of the worst type. All this is admittedly unhealthy for the farming community. In this connection, the farming unit is of importance: it is one which is able fully to utilise the other factors of production: it need not be the same as the producing unit: the unit of production in dairy farming is not the same as in vegetable gardening. From the cultivator's point of view, it is the farming unit that matters. The distribution of the farming units determines the complexion of the agriculture.

Determinants of the Size:

Several circumstances determine the size of the farms: density of population, employment opportunities, land tenures, distribution of wealth, historical and management factors, and the type of the economy. These may be subdivided into two: those which determine the prevailing size, and those which settle the variations therein. Density of population is the most important factor; in determing the present size: the larger the number of the people engaged in agriculture, the smaller the size of their farms. To increase the size of the holding, a country must either reduce its farm population, or shift them from rural to urban vocations evolve some other type of farming, or introduce some immediate measures of land reclamation. Employment opportunities in rural areas, also, affect the size of the farm; rural people do not like to shift to the urban areas for employment but prefer to settle on their own lands, even though that may not be so paying. Thus grows the pressure of population on land. This is especially true of the backward, and the underdeveloped economies. The rate of urbanward migration is hardly so effective as to reduce the population pressure. On the whole, the multiplication of the employment opportunities, especially in the rural areas would go far to indirectly enlarge the size of the farm. There are also the *pull* and the *push* factors, which are responsible for urbanward migration: people are *pulled*, when employment opportunities there are alluring; they are *pushed* (to the towns) by the lack of opportunities in the rural areas. Land tenures rank next: they influence the size by regulating the right to the use of land, as among the tenants, the labourers, the croppers, the peasants, and the landlords. Generally, *rented* farms are much larger than *owned* and *share* farms, though judged from social angle, the multiplication of tenancy is undesirable, yet coincidental with the enlargement of the size. Changing land tenures have dynamic influence on the size of holdings. At this stage, it is proper to distinguish the operating units from the agricultural farms: the former is one actually under the plough, and usually the unit of family cultivation. Thus it may vary with the size of the family, though this is not universally true. Another consideration is the farmers' ability to afford out-of-pocket expenses of a cultivation programme. The distribution of wealth is also a determinant of the farming system: with larger resources at their disposal, farmers would tend to cultivate larger farms; credit and borrowing could help them in their expansion programmes; but this is to a limit. Reasons for the persistence of small units are keen competition and rising land prices. Even with good capacity and efficiency, they may be unable to enlarge their units, for want of their own capital and cash. Historical factors, too, have a bearing on the size of the unit of farming: the unit of operation depends on the unit of ownership, which is shaped by evolutionary and historical forces. Economic units could not retain their original size with the passage of time. Agricultural and economic trends have been responsible for making the size of the unit what it is today. The management factor, too, is relevant in determining the size of the unit: the modern fashion favours the delegation of the management functions, which is possible only in the large estates, while on the small farms, it is the dual role that the peasant performs. His own capacity to manage his farm, or that of his family, thus puts a limit to the size of the farms that he operates—beyond would be uneconomical to enlarge the size. The last set of factors concerns the economies of scale and of farming types: to this the size must conform in order to be optimum productively. Economies of scale, to which reference would be made at length in the paragraph below, do not always arise out of large size, for the other factors of production have also to be considered. More important are the gains to be secured out of the specialisation of labour and capital and management on the larger farms; farming unit must be equated to the efficiency and capacity of the other factors. But it should be clearly understood that this is not the major determinant, for other factors and forces are of consequence, too.

Size and Scale:

The size and the scale of farming are often related: it is important to discuss this aspect of the problem. In this connection, some implications of "investments units" have to be understood; this would lead to an appreciation of the annual costs for accounting purpose. The optimum size of the holding is to be achieved in this context. It may be pointed out that most farmers get adjusted to the size they have been operating; still the implications of scale have to be understood. The scale may be determined with respect to equipment, the help available and the economic changes. Size may not accord with the economic optimum. While the usual discussions range around the two extremes—the small-scale and the large-scale—there may be several sizes in between. The size is usually described in acres. Farms have a high turnover like feed and labour; but what is actually needed is an overall measure of the factors of production that enter into output. In investment is such a measure available—the investment unit—which takes stock of the total investment on the farm. This is a better measure than the gross product, which may raise difficulties in the event of crop failures, and is therefore not stable. It may give an idea, whether the farm is under-invested or over-invested: this in itself means that this measure is not reliable, for an under-invested large-scale farm may look to be small-scale, and *vice-versa*. The *annual cost basis* is an improvement on this measure: though too complicated to be worked out, this is an accurate basis. A rough measure is the *annual cash rental basis:* this corresponds closely to the annual outputs. All these measures are used for making comprisons, but corrections have to be made in the use of index numbers. In respect of the relative merits of both the scales—the large and the small—the advantages are commercial, financial, technical and managerial. Gains also accrue out of the superior bargaining power of the large farmer. There are savings in marketing and overhead costs, while the economies of scale are gained. As the scale of farming enlarges, the ratio of investments (sunk capital) to total costs lowers: there is a low cost per unit of output. Profitable opportunities may be available, while the division of labour (and mechanisation) may be introduced on these large farms. Possibly this may mean the adoption of the system of extensive farming, which can be unprofitable, for their operations have little continuity. Large farms mean putting all one's eggs in one basket, for there is little diversification of enterprises and operations. With the persistence of family farming, the larger farms may get split up: into the smaller ones. Smaller scale of farming appears to be the vogue in modern agriculture. On these the advantages of personal, intimate care are gained, the devotion of the family labour on these farms. Crops and cattle respond better to affectionate looking after, than to routinised watch and ward. Small scale is conducive to satisfying land hunger, for it distributes land over a wider range. These units are also cultivated, usually intensively, and are, therefore, more efficiently operated. On the other hand, they do not enjoy any commercial, technical, managerial economies. They also face marketing difficulties, and have higher overhead costs. Thus they have low staying power, and are starved of the necessary finances. In spite of all the various disadvantages, generally attendant upon subsistence farming (which is on small scale) it is the first step in the list of priorities of an ambitious farmer, for ownership often starts with small farms. In this context, the *optimum unit*, alone, enables the optimum combination of productive factors, and establishes equilibrium economically speaking. From the practical angle, the optimum unit alone provides full and whole-time employment to productive factors, including the operator. The considerations of the indivisibility of some factors like land and labour (which may be combined with others more divisible) point to the minimum optimum (size), while the business management aspects refer to the maximum optimum. Capacity and efficiency of different units have a bearing on the problem in hand: the small scale has so far persisted due to its fullest utilisation of both capacity and efficiency of productive factors. The aim should be the attainment of the optimum size of farms, though technical, financial, economic and practical hindrances make difficult the expansion of farms. In this respect, the different types of farms may be classified as *subsistence, family, optimum* and *surplus* ones. In short, the scale of farming should tend to the optimum: this differs from locale to locale. In certain places, the small farms may be at an advantage, while in others, the larger ones may be at a premium. The character of the farm enterprises should also influence the scale, *e.g.* diversified farming. There are the *supervisory need* and the *supervisory capacity* that are both necessary for the optimum; they tend to be counter-balancing factors and mutually limiting.

The Unit of Organisation:

Attention should now be focussed on the unit of farm organisation, which, however, may not fit in with farming but matters in all these calculations. In this connection, various aspects have to be considered; *e.g.* the employment possibilities, and the management angles. It is difficult to arrive at the correct concept of the unit of organisation analytically speaking, for two types of units are to be equated to each other: the unit of organisation and the unit of production. The optimum unit should reconcile both these. In fact, the unit of production should be the resultant of the organisation and the output. Thus this analysis is of a qualitative nature, and confines itself to economico-organisational tendencies. Once again the implication of mechanisation need to be understood, from this viewpoint. Usually, very expensive machinery is not employed, unless the organising ability of the operator warrants it. True, that different sizes of machinery are available, still the size conforming to the unit of operation may not be. The question is: would a greater utilisation of machinery and equipment compensate for the other disadvantages arising out of the scale. Machinery alone is not a determinant of the unit of organisation, but several other factors, like labour, land, equipment. The unit of organisation is thus a composite unit which should utilise the mechanical appliances to the fullest possible and not *vice-versa*. But the fact remains that it is not practicable to enlarge incrementally the existing farms. Hence, emphasis should shift to the right proportions of the productive factors to be exploited by the unit of production. In the first instance, there must be a balance between managerial ability and other productive factors. Next, the effort should be to neutralise the law of dinishing returns: the size of the holding must conform to managerial ability. The social viewpoint is equally weighty in the farm work: from the social angle, it is desirable that the more efficient peasants should manage the more productive and the larger units. Under detailed management, it is possible that the individual initiative may be, at least, damped. But from the social angle, it may not be desirable to have larger units, which work like farm factories. The final answer to this problem, however, depends upon the relative efficiency of the two: the large farms and the small ones. Farm management is not the same thing as factory management: the former has to be *diffused*, which is distinct from the delegated (factory) management, under which details have been very minutely worked leaving little scope for individual initiative, and for any suggestions. Hence, on a farm, there is the necessity for diffused management, and not for delegated one, which may separate the worker from the owner. This is so because social considerations, too, dominate the work of farming.

The Dynamic Aspects:

What may be the best size of the farm needs to be prospectively studied now. Incidentally are discussed the un-economic and the economic holdings. The system of farming and the sizes of plots are changing fast: it is in this light that this study is made. The present trends, in this regard, are conflicting: evolution points to the enlargement of the size, while legislative effort is to diversify the distribution of land, by restricting the size of holdings. On the whole, the shift is to larger and bigger-sized, family units. Another tendency is towards *group* and *chain* (or *integrated*) *farming*. From the economic angle, the objective should be to operate best size, though categorically, it is difficult to specify it. But it may be stated that the best size would be that which is the *practical optimum*. To arrive at this, it would be necessary to intensify the cultivation of land. Or the diversification of agriculture may be undertaken, with a view to utilising the best out of the land. The peasant can draw up alternative budgets and then decide on these bases. Still, the best basis, for arriving at the best size, is his past experience in this respect. Possibly the larger holdings may prove to be un-economic in that a fuller use is not being made of the resources, while the smaller ones may be economic if the resources are optimally utilised. The economic size would pay the farmers' way, the un-economic holdings are disadvantageous to them. It appears in this context that the economic and the un-economic nature (and efficiency) of the holdings is not determined by size alone, but by the nature of the farming operations. In their planning, the peasants have to fix upon the unit of dynamic production, that would suit them prospectively speaking. The implicit assumption is that the peasants grow wiser and more calculating, and the state and planning authorities more conscious of the needs of farming. In their effort to expand, they may face certain hindrances, and bottlenecks: the adjustment of the buildings is to the prevailing sizes, more land may be unavailable, expansion may not take place in a consolidated fashion and then the technical and other uncertain factors may upset all calculations. Hence the expansion of the farming units is a task, which is beset with difficulties.

Unit of Farm Production:

The ground covered above is significant in an analytical sense, for the importance of the unit of production is not to be ignored by even the student of social sciences. Farmers and their farms have been classified in the first instance; this is followed by an outline of the factors responsible for the size of the farming unit. The size of holdings is determined by the density of population, employment opportunities in the rural areas, and land tenures mainly, though the distribution of wealth and historical factors do also indirectly bear upon it. The role of the management factor, in its influence on the size of the farm, needs be assessed critically. This discussion was rounded off with giving an explanation of the various economies, arising out of the types of farming in relation to their sizes and scales. The economies of scale have been described as relevant to the measurement of the various investments in farm business and cultivation. Two input measures are suggested: the investment measure and the annual cost measure. Next are underlined the economic implications of the large- and the small-scale farming: the latter is the usual size especially of the family type. The discussion about the scale of farming has pointed reference to the optimum size of farms. In this connection, various concepts are thrashed: the unit of management and organisation varies with the varying systems of farming, and with equipment and machinery. Diffused management is explained with special reference to the special characteristics of agriculture. Attention is directed to the *best size*, of the farming, which may serve as the ultimate ideal for the peasant. The problem of economic and un-economic holdings is then attacked: the economic holding utilises, to the best, all the productive factors: it is the *practical optimum*. In this regard, the unit of dynamic production has also been delineated: this unit is more important from the viewpoint of practical farming, and from the dynamic angle. On the whole, the argument is built up to stress the need for the correct and the best size of the farm holdings, from the operational, investment, and social viewpoints. But local considerations must be taken into account in this discussion.

SUMMARY AND CONCLUSIONS:

Significant from the analytical point of view has been the discussion in this chapter. In the first section, which dealt with the subject of capital and equipment in agriculture, it is established that the role of capital and equipment is of increasing importance in agriculture, for the progress of technique has been rapid. Also, investments in the sphere of agriculture have been of paramount importance though the labour intensive character of farming still persists in the older economies, which dominate world agriculture. But in the miscellaneous investments (agricultural paper and bonds etc.) agriculture does not stand to gain. Again, productivity and efficiency of capital is of supreme importance to the farming enterprises, which are getting capital-intensive now. The range of efficiency and productivity is fairly wide in this sphere, and capable of improvement: greater productivity of the capital goods is possible. The application of machinery is now getting extended, though not universally, because of certain handicaps in its application. From the dynamic and prospective angles, machines are of great relevance to agricultural productivity. Mechanical appliances in the sphere of agriculture may be used with optimism, for they have a growing potential, in view of their adaptability. Mechanisation of agriculture is now fast spreading. The *conclusion* in this respect is that the application of capital to agriculture is beneficial both to agriculture and to the farmer, but if done with caution. The section, "apportioning productive factors", discovers that the combination of factors depends upon several considerations. A combination should ensure that the various grades of different factors are equalised: they should be of the same efficiency and capacity, otherwise their integration would be defective. Again, the choice of the factors must be such as to ensure the optimum combination: cost comparisons and indivisible factors have to be taken into account. Also, the law of substitution plays an important part in this analysis, for its rule is to equalise marginal productivities; this maxim is applicable both to productive factors and the enterprises. It must be pointed out that the law of variable proportions—a restatement of the laws of returns from the dynamic angles—serves to guide the farmer in the employment and apportionment of the productive factors. This law is examined from the angle of the intensity of cultivation, while the substitution effect on the farming enterprises has been studied. In the examination of the farm costs, it is pointed out that the marginal and the average costs play an important, though not the decisive role: these costs point to the optimum input-output ratio. The role of the fixed and the variable costs is observed in respect of the adjustments made, when production is initiated: this calls for fixed costs to be considered. Combination of productive factors, it is stated, is a variant of the output aimed at, especially in agriculture, which obeys the law of diminishing returns. Of the two efficiencies—the technical and the economic—the latter is the more comprehensive, and is figured by the vigilant peasant. And in *conclusion,* it may be maintained that the farmer is guided by his practical past experience as also by the example of others who may be styled as leaders regardless of the principles propounded by the theorists. In the section "unit of production", important points for practical application emerged: these related to the size of the holdings. The farming unit is regarded as a function of the types and the structures of the farming undertaken: the larger units are getting smaller by the process of fragmentation and subdivision of holdings. In the determinants of the farming units, the more important are: land tenures, historical forces, and social factors. A distinction between the operating and the producing units needs be made: the former is an indirect determinant of the size of the units. Regarding size and scale, issues are raised about the measures: three measures have been suggested—the investment measure is the most suited to calculations in hand. The study of the economic aspects of large and small farms brought to light the greater prevalance of the small units on account of their inherent merits. It is not possible to definitely hit upon the optimum size (nor lay down an exact measure of the same) but it must be one that utilises the varied resources of production fully and optimally. Only in the advanced economies, there are permanent differences in the unit of organisation and that of cultivation; in other regions, the unit of cultivation adapts itself to the unit of organisation, for the management functions have not, as yet, expanded and become specialised. Delegation of the management is not a practical possibility in the sphere of tillage, except where very big farms are being operated, and nor is it desirable. In rural economies, it is diffused management that prevails, though in the advanced regions, that is not the rule. In view of these trends, there is the disintegration of the bigger estates. From the social standpoint, the small farms are now being favoured, for they are able to satisfy land hunger to a wider extent, than the large estates could. This is obvious, for the total quantity of land is limited. From the dynamic view, the best size is that which corresponds to the needs, the types, and the characteristics of farm operations; still, nothing definite could be said about the unit of dynamic production: the unit of cultivation may be uneconomic, even if it is on large-scale, for there may be a defective utilisation of productive factors. In *conclusion*, it may said that the objective of economic and agricultural planning is to eliminate uneconomic holdings, and if possible, attain the optimum, or at least the best size, possible socially.

The Production Effect:

In agriculture, and especially in farming, the place that capital and equipment (and machinery) occupy is of increasing importance. In the older economies, it may not be true, but the trend is towards the greater application of the mechanical appliances to agriculture. Probably, the popularisation of the agricultural paper (parallel to commercial and industrial stock) is promising, for it would facilitate agricultural progress. As will be pointed out in CHAPTER IX, STABILITY AND FINANCE, the possibilities of this type of paper have not been fully explored. The fullest advantages of mechanisation could only be reaped if the unit of production also becomes viable, by cooperativisation, for that would not only reduce the costs of mechanisation proper but also those of its maintenance and servicing and, above all, effect its fullest utilisation. Farm equipment should be as ubiquitous and unspecialised as possible, especially in the backward economies, for very obvious reasons: this is not true of specialised farms: the recent fashion in farm equipment and mechanisation is towards manufacturing them so as to make it possible for them to perform as many task as possible: even the highly specialised equipment and machines are becoming less specific.

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SELECT QUESTIONS AND EXERCISES:

1. Distinguish between: land, capital and equipment: money, capital and investment; capital and equipment, fixed and circulating capital: movable and immovable equipment; stocks and crops and materials and requisites.

2. Bring out the relative importance of the various forms of investments on the farms. Advance reasons for your viewpoint. Give Indian examples.
3. Underline the economic viewpoint in respect of the employment of machinery on the farms; with special reference to its sizes, limits and extent.
4. What principles govern the choice of factors in farming?
5. Apply the law of variable proportions to the combination of factors.
6. Assign to farming costs their proper place in apportioning factors.
7. Suggest the practial methods of combining factors in agriculture.
8. How is the size of the farming unit determined? Illustrate with examples.
9. Discuss the relative merits of different sizes and scales of farming.
10. Which unit of farm production should the farmer aim at: the unit of organisation, the unit of production, the unit of investment, the unit of operation, the unit of dynamic farming, or the optimum unit of production?

CHAPTER VII

THE SHARING OF PRODUCE

Ownership and Tenancy—Explanations and Terminology: Modern Land Tenures: Economics of Tenancy: Agricultural Relations: Leases and Lessees: Impact of Tenancy. Distributive Aspects—Introductory Appraisal: Rent and Agriculture: Profits of Enterprise: Wages of Labour: The Rate of Interest: Aspects of Distribution: The Distribution Problem. Summary and Conclusions—The Sharing of Produce. Select Questions and Problems.

THIS chapter discusses the very important—and controversial—problem of the sharing of produce: the issues of tenancy and ownership are aspects of Distribution in its larger perspective. The argument is analytical, though diluted with the description of the systems of tenancy and land holding. In spite of the efforts by the welfare states, the issue of tenancy is still actively persistent in the major portion of the agrarian world. The subject is of inexhaustible interest to the student and the reformer, as also the planner and the administrator. Interest also centres round the impact of ownership and tenancy. The problem of justice in Distribution is a headache to the welfare policy-makers. Certain burning topics of the day emanate from controversies and the complications of distribution. An account of the instabilities of an economic type is also indispensable to the understanding of the issued raised here. Agricultural relations, which are now regarded important are dependent upon the working of tenancy and of distribution of the national dividend. The sharing of produce is thus a significant step in the economic survey of agriculture, as also from the practical viewpoint.

OWNERSHIP AND TENANCY:

Tenancy still flourishes in a large part of the world in spite of the official efforts to exterminate it, and the legislative measures to raise the status of the peasantry. Prefacing the analysis with certain explanations of such terms as "land tenures", "tenancy", and "agrarian relations", a brief description of the modern land tenures delineates the socio-economic canvas. This is followed by an economic appreciation of the problems of tenancy, while the influence of industrialisation has also been traced. How alienation of land and the restrictions on its transfer affect forms and types of tenancy are next assessed. In this section, the topic of agricultural relations is to be discussed in the light of community relations, institutions, and social factors. A survey of the main problems of leases and lessees is also made with some attention focused on the improvement and the perpetual leases. In the end are noticed the modern trends in ownership and tenancy. The subject is thrashed with an eye on the forms and types of the institution in its various garbs, some of which are deceptive.

Explanations and Terminology:

Most of the terms in this section are borrowed from the legal vocabulary. Fortunately this terminology is not so analytical but mainly descriptive: it covers the economic, legal, political and social relationships and customs, which are concerned with the ownership of land. *Agricultural relations* conveys the relationships subsisting between the landlord and the tenant, though in the broader sense, it should connote the relations between the creditors and the debtors, and the special relations between the different classes of the village society. It may be pointed out that various relationships are shaped by the working of land tenures in the village. The fact of cultivation does not necessarily mean that land is also owned by the tiller. Owner has the right to transfer land or even sell it: this is hedged by legislation, *e.g.* land could not be kept idle. If ownership and cultivation are vested in the same person, it is regarded as good from the social and economic points of view. Problems of tenancy arise when there is divorce between these two; the gulf between these determines the nature of the tenancy problems and the complications arising therefrom. Landlords may not be the cultivators of the estates: they may be absentee or they may share the produce with tenants. There are often many intermediaries between cultivators and owners. There may be occupancy tenants, who cultivate the land as a matter or right, and cannot be easily ejected, or there may be other types of tenancies. More of this below.

Modern Land Tenures:

In this connection, it is desirable to appreciate the economic implications of several types of modern land tenures. *Copyhold tenure* originated in England: perpetual right to the use of land, (with the proviso that a certain payment is to be made), is its feature. The rent was nominal: hence it was described as *nominal tenancy*. Next system is the *leasehold;* land is hired from the landlords on a certain rent, in the hope of being able to get a bigger piece of land later. This form also originated in the U.K., when the Enclosure Movement made it expensive for the farmers to purchase lands. *Corn rents* was another variation: rents are in terms of corn and are unaffected by price fluctuations. Under *profit sharing*, the tenants and the labourers were paid a share of the profits, earned on the farm; in addition to wages, it provided a spur to work harder. But now it is dying out, though the bonus had clear gains for farming. *Share cropping* permits the division of the produce between the cultivators and the owners on a definite basis, the tenant is not free to cultivate any crop he pleases. *Share renting* is another variation: the tenant shares with the landlord, both the expenses and the costs of cultivation. This system, which prevails in the U.S.A. and India (Batai) has the advantages of doing away with the evils of absentee landlordism and ensuring interests of both the landlords and the tenants. Another variety is *land-and-stock shares tenure*, under which the landlord furnishes a part of the livestock, or has an interest in the same: this is a kind of share-renting system, for the details are nearly alike. Land generally belongs to the landlord, as also buildings and livestock, while the tiller supplies his labour, implements and machinery. But there can be several combinations. Under the *cash tenures*, the payment of cash is made in lieu of rent; the landlord is usually an absentee: hence, the labourer-tenant tries to get the best out of land, which is, therefore, exhausted soon enough. Certain conditions, too, may be imposed on the tenants. Another one is *part ownership* under which owership is joint, often of the tribe or the clan; the cultivating-owners are paid a wage in addition to their shares. This variety does not cause much confusion. *Croppers* do not have to invest anything in land except their labour—the landlord furnishes everything, and under certain circumstances they do not get any wages, but only a share out of the crop, which is equally divided. And under the last system—occupying ownership—the owner-cultivator himself cultivates the land. Alternatively described as *peasant proprietorship*, this type is the most useful from the economic and social viewpoints, for it raises no complications of tenancy, though monetary and financial handicaps do haunt the cultivator, yet the enthusiasm of the family makes up for the lack of these. But usually it is the subsistence type of farming that is practised.

Economics of Tenancy:

Ever since the Great Depression, tenancy has been generally on the increase: agricultural instabilities have been working to the same end, while defective legislation, too, has been responsible for perpetuating it. Alienation of land has added confusion to the prevailing chaos; the impact of rising land prices has been very grave indeed. From the economic angle, systems of tenancy may be grouped from *four* angles: the classification could be from viewpoint of various forms of payments to be made; second grouping is according to the degrees of control exercised by the landlord; the third covers forms of tenancy varying with the length of the period of tenure, and lastly classification could follow the status of the landlord, and his degree of control. From the economic angle, the best advantages are derived from the degree of functional specialisation in tenancy: the functions of supplying land and buildings belong to the landlord, while the tenant supplies the working capital. In the financial sector, money resources are widened, for on a good tenancy system, both the landlord and the peasant-cultivator may invest in farming. From the organisational viewpoint, the dormant abilities of the tillers may be well utilised for farming. From the technical standpoint, a good tenure may provide an impetus for the employment of better technique: progressive landlords may patronise and encourage better farming practices. But the seamy side shows some defects: absence of fair rents, absentee landlordism, economic exploitation, evils of free sale (which engender cut-throat competition) restrictions on the tenants, (damping all their enthusiasm) and the unwillingness of landlords to compensate their tenants for improvement—this results in the exhaustion of the land. Increase has been registered in tenancy: with the passage of time, peasant proprietors have been reduced to the status of tenants—mounting marketing costs, increasing mechanisation, defective legislation, and the social and economic pressures have also worked to the same end. The expansion of large manufacturing industries brought about a change in the sphere of agriculture, for cottage industries are uprooted, thus throwing more and more tenants on agriculture, and increasing the economic pressures there. Also, subsidiary industries were extinguished, with the result that the peasants became under-employed, agriculture became unprofitable, and they had to turn tenants. The new rich began to own land; this fact dispossessed the peasants, who were reduced to the status of tenants instead. Fluctuations too hit agriculture hard, for its costs are notoriously inelastic; therefore, if and when prices fall, farming becomes unremunerative. Even planning may not be able to rescue the peasants from the disaster, for all their precalculations are upset: hence forced sales become the rule, for rising indebteness compels them to sell away their farms and work as tenant's. Defective legislation is responsible for worsening the conditions of the peasants, for the sales of land are often restricted to the agricultural landlords, who thus swallow the smaller fish. Similarly, the marketing legislation, by imposing restrictions on the marketing procedure, exposes him to open competition. Debt legislation, too, by contracting the supply of credit, forces the peasants to sell away their lands to the big owners. Defective legislation worsens his lot. Long-term leases, also, act in the same direction, for they tempt the peasants to sell their lands to get money and become tenants instead of fighting the hazards of tillage. With the passage of time, the conditions of tenancy are tightened. and the long-term leases ultimately die away. Certain damages and compensations attend the institution of tenancy: for some improvements that the tenant may have made, he may demand some compensation, though the landlord may present him with a counter-bill for "the damage done" to his land. Thus are strained agrarian relations. Legal help may be costly or not even availed of, for fear of social harassment. The alienation of land has brought about some accentuation of the problem of the tenants: if absolutely restricted, it may stem the tide, but when partially restricted, results in the increase of tenants. Rising land values do encourage the multiplication of tenants, as it becomes better for a peasant to sell away his land, instead of facing the risks and uncertainties attendant upon tilling. Other factors are: improving income standards, wider employment opportunities in the towns (alluring the peasants to sell away their lands to the landlords) and the wider distribution of income. Once a tenant, the cultivator is glued to his status; a long-term lease binds him down.

Agricultural Relations:

Changing land tenures affect agrarian relations. Status in the rural areas is often coincidental with the ownership of land; tenant is low-placed. Hence, agricultural relations emanate from the facts of ownership and tenancy. That is why this problem needs to be examined in details. The two problems are those relating to the improvement of the status of the tenants, and to the reduction of tenancy. The conscientious tenant devotes his whole heart to cultivation but if the landlord is "absentee", he does not care for land, with the result that land might deteriorate fast. If the tenant makes improvements on the farm, he may get no compensation for the same. This point has been dealt with above. The age-old institutions expect the landlord to deal with his tenants in a humane manner, but with their weakening, and with the spirit of individualism pervading the countryside, the relations between the landlord and the tenants get strained. Also, the community make it compulsory for the tenant to perform his duties well. Action could be taken against either party for default, and disputes were settled amicably. But in practice this works against the tenant. Status and social standing (of tenants) are determined by the nature and character of agricultural relations. With long-term leases, the agricultural relations are smoothe and happy, but under short-term leases they are apt to get strained. Thus the terms of the contract (and the frequency with which it is renewed) shape agricultural relations: in this way it is tenancy and tenures that affect agricultural relations. Also in case, the tenant's standard of living is high, he would not brook any nonsense nor would the landlord dare dominate him. And in case the law is evaded or broken, the tenant (with good status) would not mind going to law and seek legal redress. The landlord attitudes account for agricultural relations, for if the landlord is sympathetic, he would be respected and even loved by his tenants. Similarly, personal adjustments on the part of both the tenants and the landlords smoothe their relations: but with the inflexibility of their minds, the relations would be strained. Division of rights is material to these: once rights and priveleges have been satisfactorily settled, the relations remain cordial. If based on the canons of justice and equity, there is no further trouble. The role of social factors in this matter is of paramount importance in agriculture: these determine the social aspect of these relations: in a caste-ridden society, they are pre-determined, and conform to traditional patterns. The lot of the tenants can be improved either by the State or the landlords: usually with afficial intervention they take an unhappy turn, but the landlords taking an interest in the welfare of their tenants, they become better. On the whole, there is need—and urgently so—to reduce the tenancy, for the evils of this institution far outweigh the benefits, which are mostly theoretical. Tenancy could be wiped out by the nationalisation of land: but this often results in beauracratisation and red-tapism: much depends upon the re-distribution of land. In sum, it may be said that the nature of improvements in the agricultural sector affects the lot of the tenants, and shapes agrarian relations: this is apparent.

Leases and Lessees:

To describe tenancy, is, at this stage of the argument, essential to the completion of the above survey. Tenancy to be useful must be progressive and ensure the elevation of the tenants. Its main forms are the freehold, the permanent, perpetual and restricted leases: all these have to be scrutinsed from the viewpoint of reform. The *freehold* is a long-term lease, which the tenant enjoys for his lifetime; he could fully benefit from improvements made in the land. Later on, the freeholds may become conditional, and hard on the tenants. *Improvement* leases came into force to ensure that the tenant did not leave the land in a condition worse than he found it: remuneration may be granted to the retiring tenant for his investments, but he must not exhaust the soil. As a further step *conditional* leases were developed: they imposed certain conditions on the tenants, if they were to retain lands, *e.g.* the payment of rent, or even the cultivation of certain crops etc. These restrictions may be imposed to ensure a good flow of raw materials to the owners of factories. Of course, these conditions have to be recognised by the State: these should accord to their laws. Next are *permanent* and *perpetual* leases, which are often granted to cultivators reclaiming land; the terms are quite nominal, and the period very long, even a century, or so. These leases are recommended to enable the tenants to rise to the status of the cultivator-owners. *Restricted* leases are operative for a certain number of years, or may also be limited as to the person or his rights and privileges. And, these restrictions can be pronounced, too. The trend of opinion is against them for obvious reasons, for under these operational freedom may not be granted to tenants. It is rather difficult to say with precision, what the modern trend in this regard is: it appears to be towards the elimination, or at least, the reduction of tenancy. It is advisable to attack the problem in stages and in slow manner, for otherwise there may be dislocations in the economic and the social fabric, especially because legislative measures may have largely failed. National interests suffer due to the depletion of land, and the straining of the agrarian relations. A different method is being tried in India, the Bhoodan movement, which aims at revolutionising the system of land distribution: an appeal is made to the noble sentiments of the landlords who surrender their lands willingly for distribution among peasants with the result that agrarian relations improve. Even if the "gifts" are of barren lands—as is often alleged—the noble spirit behind this movement is infecting the countryside, with promising results. In sum, it may be pointed out that the life-long leases are the best of all the various systems. Legislative effects have not been very beneficial, for the pressure of population has been responsible for the stability of the institution of tenancy, since both the tenant and the landlord have conspired to break the law; meanwhile land has been deteriorating and exhausting.

Impact of Tenancy:

In this section are reviewed important problems of agricultural economics. Different implications of the various terms used in this connection are studied. How ownership and tenancy are divorced from each other, and how one did not depend upon the other are also discussed. The relations between the landlords and the tenants have been thrashed out next. This is followed by a description of the various leases and tenancy systems: share tenancies are set against the cash rents, and the former recommended. Attention is then focussed on the economic aspects of the tenancy problem: the advantages are more or less of a theoretical import, while in practical working the system is an evil. Increase of tenancy is another unfortunate aspect of the problem: several causes are held to be responsible for this trend. Important among these were impact of industrialisation, instabilities of agriculture, defective legislation, and over-regulation or excessive intervention in the agricultural sphere. In the examination of leases, the long-term variants are favoured, though they have deteriorated into other forms, due to keen competition among tenants. The complex question of damages and compensations is thrashed out in this light, this might pin the tenant down to servitude, for landlord is always unwilling to compensate the tenant for the improvements that he makes: he might actually present him with a counterbill for the "damages" caused to his land. The restricted as well as the free alienations of land tended to accelerate this evil of tenancy. Land values, by rising meteorically, have been responsible for tempting the peasants to sell away their lands and turn into tenants instead—rural indebtedness aggravates the trend this way. Next are delineated the various aspects of the agrarian relations, which have developed out of community relations, and institutions, division of rights, social setting, attitudes and adjustments. The analysis is rounded off with a description of various leases: the freehold, the improvement and conditional types, the perpetual forms and the restricted ones. While the freeholds and other nominal leases are not oppressive, the conditional and the restricted ones do darken the tenant's future and damp his initiative: they should be finished.

DISTRIBUTIVE ASPECTS:

The stage is now set for the discussion of the issues pertaining to the remuneration the productive factors and agents. The levels of income are determined on the setting of Distribution. The inequality of incomes, it will be seen, is due to the defective process of distribution, in all types of economic activity. The survey starts with an elementary assessment of the theory of distribution, and an explanation of the basic concepts related to it. This is followed by an outline of the theories of rent: stress is laid on the classical explanation, and the modifications offered by Marshall and the Moderns. Profits are discussed next, for the simple reason that farmers regard all earnings as profits; the dual functions of the farm entrepreneur are probably responsible for this attitude of theirs. In the analysis of wages, the endeavour is to appraise various theories in the light of custom and competition, progress and motivational processes. The determinants of the rate of interest (which is of import to the agriculturists) are underlined in the agricultural context. A view of the several aspects of distribution follows this analytical survey and points its limitations. This is not an exhaustive analysis, but the effort is to diversify it as near reality as possible, for anything like perfection is unattainable in any agricultural analysis.

Introductory Appraisal:

The theoretical basis of distribution is given some attention, for the problem has a linkage throughout. Three issues arise: what is to be distributed? among whom is it to distributed? and what is the theoretical basis of this distribution process? The answers respectively are: it is the national dividend that is to be distributed, among the agent of production, and by forces economic. In agriculture, however, the distributive agency is custom, rather than competition, which is the basis of economic theory. But the modern problem of distribution revolves around the question, whether the system is just or not. Productive enterprises would not be undertaken if they were not rewarding to the productive agents. Hence, motivation to productive effort comes from distribution, which is the source of income. The distributive process is functional, *i.e.* according to the functions, the agents of production perform. The division of the national dividend takes place (theoretically) among the productive agents, and not among persons, but in practice, it is personal distribution that is important. Nor does the individuals worry about the different (academic) labels on their productive remunerations, but the total payments they get. In this theory, the concept of the national dividend is rather significant: it is the objective income measurable in terms of money, and accruing to the nation. It is composed of the net aggregates of goods and services, material and immaterial, which have been produced by economic effort. There are three important methods of calculating it: the census, the income and the occupational methods. The first calculates the value of all annual produce, making an allowance for depreciation and wear and tear; the second consists in adding the incomes of all individuals; and the third is the method of the occupational census, by which the earnings of all the persons employed in different occupations are listed. These methods depend upon surveys being undertaken by expert investigators. Calculations of national dividend are valuable from the agricultural angle, for they are useful, both to the administrators and the planners. To unravel the main theory of distribution, the principle of substitution has been invoked: the producer so consumes his productive factors that equi-marginal returns accrue to him; this is done by substituting one factor for another till equilibrium is attained. The marginal unit is that which it is just worthwhile to employ. Production is the result of the combined and the cooperative efforts of all the agents of production. Marginal productivity is measured by the increment that a particular factor makes to total production. The general theory of distribution is based on this marginal productivity explanation of the production process; the remuneration paid to a factor of production connotes, theoretically, its marginal productivity, for the factors are so employed that their marginal productivities are equalised. The implicit assumption is that these productive factors are homogenous, divisible, and substitutable as among themselves. Thus in equilibrium, the marginal products of all factors are equalised. Apparently, the assumptions are not practically realistic, for neither are the factors homogenous, nor divisible, nor even substitutable. But the most important assumption—that the law of diminishing returns does operate—is applicable to agricultural operations. Distribution, it may be again pointed out, is functional, and not personal: for instance, the functions of capital may be performed by a trained farmer, whose earnings may (in theory) be styled as "interest" on the capital invested in his training, though in popular usage they are "wages" a part of which is rent of ability. Hence, most of the productive factors earn composite payments, which may not be possible to disentangle except in pure theory. The principle of substitution is related to the functional aspects, and not to the personal ones. Practically, it is the personal aspect that is relevant to farming, for the operator is not bothered about the (imaginary) functional aspects, so prominent in theoretical analysis. Again, the personal aspects are concerned with agriculturists to whom payments have to be made (this interests the tiller of the soil) and not the functions for which these may be paid. Still, the theoretical framework has to be appreciated before an understanding of the personal complications. This analysis however, is of limited application to agriculture. In agriculture, more than anywhere else, it is the composite and cooperative efforts of all the factors that matter; it is not possible to distinguish between the roles of each of them in the productive efforts. The theory is based on the concept of the marginal analysis, while in agriculture, it is hardly possible to make alterations in the apportionment and combination of factors on the margin, without affecting the productive efficiency of the whole enterprise. Again, the measurement of the net marginal products presents another difficulty, due to economies operative when combined factors are working; to assess the marginal contribution of a single factor, even though functionally, is well nigh impossible. Also, the price-cost relationships, on which the combination of the productive factors rests, is upset by trying to make alterations at the margin.

Rent and Agriculture:

The most important payment in agriculture is *rent*: it is also the most basic one. Rent accrues even on one's own land, though it has not to be paid. An understanding of this theory decides several issues in landlord's payments, which are mostly of the nature of contract rent. As distinguished from every day speech, *rent* in agriculture is the charge made for the use of land: as Ricardo said it is the payment for the indestructible and original powers of the soil. In the Ricadaian theory, rent is measured with reference to the "no-rent land", which is the marginal plot, for it just covers its expenses. Citing the case of the new countries, Ricado argued that in the early stages, settlers had not to pay any rent until they exhausted all good lands, when they did pay rent for the quality-lands. With the expansion of population, lower grades are utilised, and the better plots pay rent, with reference to those which do not pay any rent. This goes on, till the land becomes quite scarce, and even the marginal lands have to pay rent—scarcity rent—on account of scarcity. This is so far as extensive cultivation is practised. Under intensive cultivation, computation of rent is on the basis of the no-rent land: this land is that which has been so much farmed that it is nearly exhausted, and just pays its way. In this regard, rent is paid on the differences of productivity with reference to the least remunerative piece of and. The underlying assumptions are: the qualities of land are original and indestructible, law of diminishing returns prevails, and the Malthusian theory is applicable, and above all, that the first settlers settled on the most fertile plots. This theory has not been accepted by a large number of Economists: that there are original and indestructible properties of land is questionable; colonisers do not settle on the best lands; *fertility* has been left undefined; concept of the no-rent land is another vulnerable point. And there are economists who go so far as to question the need for evolving a separate theory of rent. Dr. Marshall, in his effort to improve the theory, maintained that economic rent arose out of *differential advantages,* which one piece of land enjoys over another, and that it is computed from the margin upwards, for the marginal plot of land does not possess any differential advantages. All the various factors, responsible for better productivity, are grouped under the term "differential advantages"—including proximity to markets, and accessibility of the raw materials. Rent, in this sense is the outcome of the economic forces. Still, the differential principle fails to explain the payment: it does not explain the accrual of rent on the marginal lands. According to both the theories, sub-marginal lands need not pay any rent. Carey emphasized the fact that the settlers first farmed on the most accessible lands and not the most fertile ones: he emphasized the role of situation. Marshall had stressed both situation and fertility in his wise concept of "differential advantages". It may be pointed out that the benefits of situation are taken into account, when locating the farms. Still, it has to be conceded that both situation and fertility affect rent. Implicit in the theory of rent is the fact of population growth. But what if the population did not behave, as anticipated in this theory? This is what is happening in the modern world: hence rent does not appear to be the resultant of the above-mentioned factors, but of several causatives. Marshall applied this concept

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of rent to other payments, which arose in the same fashion as rent. *Quasi-rent*—in Marshall's terminology—arises out of the element of scarcity of a temporary nature, and does not have permanence, for in the long-run there is no such thing, as quasi-rent. From the agricultural point of view, this concept does not appear to be very helpful. Henry George fathered the idea that rent is an *unearned increment*: this increment is not due to the efforts of the landlord, for it arises out of the social progress. Rent, in this sense, is a function of social development. But it is pointed out that it is not only land which is affected by social progress, but also other factors; and there may be negative increments or fall in value due to social deterioration. The concept of *transfer earnings* has become popular of late; these are what a factor may earn in the most remunerative alternative employment, or what is required to be paid in order to retain the factor (land) in its present use. This obviously means that the *transfer earnings* of specific lands (and factors) are nil, while they are actually very high. In the modern view, however, the separation of the theory of rent from the rest of the economic analysis is unnecessary. But fundamentally speaking, rent is paid because the produce of land is scarce in relation to demand for the same. The properties of land are only derived, and not original nor indestructible. None of the theories is a complete explanation, hence the complications. Rent is calculated on the basis of the marginal lands: rent arises out of marginal productivity of land. In sum, the behaviour of rent depends, *inter-alia*, upon the nature of economic progress, the trend of population, and the improvement of transport. In the backward economies, there is the population growth, but in the advanced economies, it tends to be controlled: it is maintained that the demand for land intensifies in both cases, as the standards of recreation and transport rise. From another angle, rent may be regarded as a scarcity payment. In the long-term, therefore, rents tend to register a rise. In short, rent is dependant upon several factors, which may be the outcome of institutions.

Profits of Enterprise:

From the viewpoint of the farmer, profits stand next in order of priorities. More efficient the farmers, larger their profits. In the case of other factors, there is a definite demand for them, but in the case of enterprise, there is no such demand, though theoretically it could be said that the entrepreneur is *demanded* by the community indirectly. The second difficulty arises in the case of assessment of profits, for they are not so distinctly calculable, they often contain an element of wages, rent, or even interest. In the sphere of agriculture, the farmer is both an entrepreneur and also a labourer. In the case of a farmer, there are certain peculiarities: he is exposed to the hazards of Nature, there are umpteen uncertainties facing him while monopoly gains in agriculture are not so glaring as in other economic activities, nor are conjunctural ones. And the agricultural entrepreneur is much less enlightened than his counterpart elsewhere. Above all, there may be a rate of interest, or of wages, but none of profits, except in a very blurred sense. Strictly an individual and personal payment, there could be not any *rate* of profits. The first explanation was advanced by Hawley, who described profits as *the reward for risk bearing:* with the development of insurance, this view has been regarded as erroneous. He failed to distinguish risks from uncertainties. An improvement on this was the theory, enunciated by Clark, who ascribed profits to *dynamic* factors: if the law of change could be precisely anticipated in its operation, profits would not arise. Professor Knight distinguished between *foreseeable* and *unforeseeable* risks—the latter are termed as *uncertainties*—and regards uncertainty as a distinct factor of production. It may be pointed out that this factor is concerned with making investments, which, in the farming sphere, is quite a slow process. As far as agriculture goes, there is hardly any satisfactory explanation of profits. The fear is that with progress, profits tend to decline: fewer opportunities remain for reaping the reward. But in agriculture, progress tends to raise profits usually, for the farmer grows more proficient, his business better managed, and his investments higher, while the foreseeable risks are increasingly insured. Profits appear to be very relevant as a causative of motivation in any sphere of economic activity. Profits provide a spur to the peasant, who does not fall into the rut of tenancy, for they help him build up reserves. Good profits stabilise agriculture and strengthen the national farm economy.

Wages of Labour:

From the national angle, a good labourer is an asset, for he raises the productivity of land and farming. As pointed out above, there are different types of farm labourers: one who shares lodgings with the farmer, the separate worker, the hired (married) hand, the casual, and the landless labourer. Different methods of wage payments are in vogue: piece wages, time wages, task wages, contract wages, sliding scale (wages), profit sharing, premium wages, incentive wages, group wages, and customary wages, and minimum wages. Most of these terms are self-explanatory, while others are common. *Task wage* is paid for a certain specified task, while the *incentive wage* motivates the worker to better performance. *Sliding scale* wages are paid according to the variations in prices and costs, but in *profit-sharing*, the profits are shared by labourers with entrepreneur. Still, in agriculture, it is the *customary* wage—fixed by custom—that is most important. Regarding the theoretical explanations of wages, the oldest is the *subsistence theory*: wages could not remain at levels higher than subsistence, for if they did, labourers would multiply fast and neutralise the rise. Based on the Malthusian doctrine, this is also known as the *iron* or *brazen* law of wages, and is applicable to backward (agrarian) economies. The *wages-fund* explanation propounds that wages are determined out of the wages fund (the national dividend?) which is set apart for the payment of wages. Mill, who fathered this concept, was unable to amplify it to the extent that it could be realistic. The *residual claimant theory*, expounded by the American economist Walker, described wages as the residue left over after all the other claimants (agents of production) have been paid out: thus the total income and the recurring payments that stand as the first charge, together determine the rate of wages. This appears to be quite applicable to the farmer-entrepreneur, who is, no doubt, the recipient of the residue, after meeting all other charges. The *marginal productivity theory* states that the wages approximate to the marginal product of labour; Taussig refined it by suggesting that it was the *discounted marginal product* that accrued to labour, for the discount had to be accounted for in view of the time that elapses between the production of a commodity and its sale. The modern explanation is that wages are fixed between the *maximum* and the *minimum limits*: the upper limit corresponding to the discounted marginal product, and the lower one to the standard of living, or in economic terms, the *economic* and the *social levels*. In agriculture, there is the triangular competition between the employers, the employees, and both of them. But the supply of labour is inelastic, for farm workers do not like to shift to other jobs, nor is their labour so mobile. On the demand side, there is the characteristic of its seasonality. Agricultural wages, in this context, and also in view of the dual role of the farmer, conform to their being the residue left after meeting all other charges. Farming is mainly a labour-intensive pursuit, not capital-intensive, and has an endemic surplus of labour; hence wage levels in agriculture are usually low. This level is low due to the lack of any organisation among labourers, and difficulties of the enforcement of legislation in this section. Custom has ruled agriculture, while competition has been mostly negligible. Things are now changing, and custom is giving way to competition. Still, in the backward and agrarian economies, customary wages are being converted into cash wages: hence the low level in wages does persist. The wage payments in agriculture are more or less routine, and do not provide motivation to the labourers, visibly; but free meals and board do have some such effect. Wage regulations have been rare in agriculture though efforts have been afoot in certain economies for legislating on the conditions of farm work: the widespread character of these operations coupled with their ignorance, and the lack of publicity about wage controls in rural areas, intensifies their problems. Disparities do persist as between agriculture and industry for there is lack of standardisation of farm wages, while the conditions of work are uncontrolled, nor is the farm labourer conscious of his rights. Agricultural wages continue to be at disparate levels. The impact of progress on agricultural wages is affected by the nature of innovations, the behaviour of the operators, and the state policy. Obviously with the increased application of new technique, and the growing consciousness among farmers, and welfare attitudes, wage levels are apt to rise. By increasing the efficiency of the marketing system, the *discount* tends to disappear; diversified employment opportunities act in the same direction. To sum up, it may be said that the results of the statutory controls have not been beneficial, for employers have sliced off the other benefits: real wages, have therefore, suffered instead of gaining. Payments in kind have been adversely affected; and special bonuses and *inams* have disappeared quite. Casualisation of labour has often resulted from the above: the only healthy trend has been toward the growth of trade unionism here.

The Rate of Interest:

Interest is the price paid for the use of capital. In the agricultural sector, the rate of interest would determine the range of capital investments made here: under a high rate of interest, these investments tend to be limited, while a low rate may extend them. A good credit system facilitates adjustments between people with surpluses and those in want. Just as distinctions were made between the *pure* and the *gross* profits, so are to be distinguished the *gross* and the *pure* interest rates. Gross rates include charges made for risk, management, inconveniences, and the difficulties of recoveries; the money-lender's rate of interest is gross. Theoretical explanations for the rate of interest have been many and varied: the *abstinence theory* points to the interest payment being made for the deprivation of the use of money by the lender; Marshall preferred the use of the word *waiting* for it. Still, the theory does not furnish an adequate explanation. The Austrians propounded the *agio theory*: payment of interest arises out of psychological factors, for the tendency is to prefer present goods to the future ones, as there is the prospective underestimation of the future. Fisher, in his *time prefer-*

ence theory, ascribed to the time factor, the payment of interest: the longer the period of the loan, the higher the rate of interest. Interest is the rate of discounting the future. Another familiar explanation is that of the *supply and demand* for capital, but more of this (and its modifications) below. Among the moderns, Lord Keynes pointed out that marginal productivity of capital has not much to do with interest; in his opinion the explanation must be couched in terms of *liquidity preference*—the higher the liquidity preference (preference of the people to keep their assets in liquid cash) the lower the rate of interest, and *vice-versa*. The modern economists, like Prof. Bains, criticise his theory, and suggest that the rate of interest depends upon the demand for and the supply of the *investible funds*. To agriculture, however, this analytical framework may not be applicable in toto, for the rate of interest is gross and not pure. The demand and supply explanation may to a great extent account for the high rates of interest in this sector—inconvenience, difficulties of recovery, personal factors, the monopoly of the lender, the seasonal demand for capital and the unproductive character of most of the loans—all these are the factors responsible for raising the gross interest to high levels. Demand and supply forces are both of a seasonal and inelastic nature: savings are meagre, while the demand from the farmer is of unproductive character, and sometimes for wasteful purposes, too. His illiteracy and ignorance, too, account for the prevailing high rates, which are *actually* charged. Interest plays an important role in agricultural investments, farmers would have been starved of funds if there were no interest. Confusion of legislative measures has been restrictive of the supply of credit in the sector. Long-term investments characterise the agricultural enterprises: this is the theoretical basis for high rates of interest. With increasing mechanisation, there has been an inflated demand for investments in agriculture; hence the recent rise in interest rates. On the other hand, the State agencies by their readiness to finance agriculture, and its proficient working, have tended to stabilise the interest rates. Growing literacy and enlightenment among the farmers has also weeded out their demand for unproductive and wasteful loans. And the recent emergence of the agricultural paper has also brought down the rates of interest: it is hoped that these trends will persist.

Aspects of Distribution:

One thing strange about the agricultural sector is that the farming activity goes on regardless of its remunerative aspect, for agriculture is a mode of living and not a well-calculated profession. Still, the movements of profits and rents are watched by the keen and intelligent peasant. This does not mean that he is unmindful of the rate of interest and wages: for a peasant with ambitious programmes, these are of relevance. The distinction between rents and profits, for the common farmer is not of much consequence, for rent accrues to the peasant-proprietor and gets mixed up with profits. Also, the variations in the efficiencies of farmers do influence rents and profits, as does the relative usefulness of equipment and labour. Improvements in the practice of farming raise profits and, incidentally rents. Earnings of agriculturists are grouped under "wages": the earnings of the family members are of the nature of wages, though they remain latent and are invisible. Wages are regarded as a contract between the employers and the employees; and vary in their range, though they do not accord to efficiency differentials. Thus the wage payments are diffused, as also composite: it is the earnings that the agriculturist gets and not wages *per se*. Interest is an imposition on the peasant, for its incidence is heavy indeed. The credit needs of the peasant are inelastic. Interest enters the sale price of land, the purchaser keeps interest in his mind when buying land. Interest rates need to be regulated because the credit needs of the peasant are rather rigid and inelastic. But with the lowering of the rate of interest, unwisely, there may be an undue liberalisation of credit and a resultant over-investment in agriculture. On the whole, the subject of agricultural earnings is vast and varied. It is noteworthy that these incomes remain unclassed, even theoretically speaking. These may arise from conjunctural gains, or unearned increments. Unfortunately, the operation of the law of diminishing returns affects, adversely, the income levels in agriculture. Production is the result of the combined and indistinguishably integrated efforts of the productive factors: hence it is rather difficult to assign to one single factor, a particular part of the earnings. From the practical production viewpoint, it is not useful to label the performance of the various factors of farm production as distinctly separate.

The Distribution Problem:

The scope of this section has been rather extensive. The usage of various theoretical concepts in agriculture is possible only with some modifications. A brief description of the production-distribution relationship is followed above by an enunciation of the general theory of distribution: it is pointed out that distribution as understood, in this sense, is functional, although the peasant is concerned with the personal aspects. Regarding rent, different theoretical explanations have been advanced, along with the modern one in terms of transfer earnings. The problems of profits are dealt with, and the role of the farmer-entrepreneur underlined—an account of the special conditions in this sector is given. Next, attention is focussed on the various theoretical explanations of wages, which are found to be of the nature of residual payments in agriculture. Wage regulations and wage incentives are analysed from the special point of view of agriculture: wages under progress do rise. The rate of interest (which is of importance to the farmers) is analysed in terms of the classical and the modern theories; but demand and supply forces (with the modification offered by Professor Bains) are applicable in this sector where the demand for and the supply of loanable funds is rigid. And the section is rounded off with a summing up of the various issues raised herein: rents and profits are indistinctly separate to the peasant, while wages tend to take a broader perspective of earnings, and interest remains of supreme importance to the agriculturist always.

SUMMARY AND CONCLUSIONS:

The chapter has had a wide range: tenancy and ownership and the distribution problems—all these relating intimately to the bigger issue of the sharing of the agricultural produce, among the different claimants. In the discussion on tenancy, the irresistible conclusion appears to be that earlier this institution is ended the better it is for the society, and for agriculture. The problems, born out of tenancy relate to agricultural relations, and the distribution of land and wealth, especially from the welfare angles. Still, the various problems of tenancy are on the increase, due to the interaction of certain socio-economic forces, specially strong in the agrarian societies. The incidence of tenancy is evident in the deterioration of agricultural relations and exhaustion of the soil. It may also be noticed that because of this evil, the distribution of wealth and land has tended to concentrate, and the social inequalities are getting cemented. Again the tenants have to remain tenants, due to the inexorable operation of the socio-economic forces in the countryside. Tenancy system does not ease the situation with regard to the distribution of land: land hunger is not satisfied even among the tenants who hold the land, they crave to possess it. Moreover, under tenancy, the burden of population on land is heavy, an increase in the number of intermediaries takes place, and it becomes more advantageous to parcel out land in small strips to many tenants, if only to generate competition among them. Tenancy damps motivation in the agrarian society, for the peasant-tiller-tenant gets practically nothing for his labours. To conclude, tenancy is a social menace and must needs be wiped out: hesitant and halting policies may only lead to evasion and aggravation of the evils. The discussion of the problems of distribution leads to the certain conclusion that the subject must not be approached from the strictly theoretically economic angle, but from the peasant's practical viewpoint. Payment of rent is an important charge on the tiller, and it accrues to the peasant if it his own land. Most appropriate as an explanation of rent in agriculture is the Marshallian theory of rent couched in terms of "differential surplus", though some economists discount the very idea of having a different theory for rent. Profits in farming are not distinguishable from other earnings: their role is of significance, for the simple and obvious reason that most of the farming is (family) subsistence type. In respect of wages, the explanation is a pointer to the diversity of these payments in this sector, hence it is difficult to cling to any particular theory. Still, the *residual claimant* theory appears to be applicable to agricultural conditions. But the regulation of wages in farming is an uphill task, with the result that legislation is mostly leaky or evaded. Regarding interest, the theoretical framework of Lord Keynes does not seem to fit in with agricultural structures though the explanation of Professor Bains is more valid in explaining this phenomenon: interest is fixed in accord with the working of the traditional and customary forces, and the domination of the monopolistic moneylender is glaring. The irresistible conclusion is that the distribution theories can be applied to the agricultural sector though with serious limitations, they are hedged in by many exceptions: distribution in agriculture is very confused and complex indeed.

The Sharing of Produce:

The above discussion points to at least one fact: that the iniquities in income distribution as in the agricultural sphere are quite prominent, with the result that there is social injustice here. The lot of the underdog in farming is very miserable indeed, with very demoralising results and far-reaching social consequences of a very desperate nature. Idle it is to dismiss lightly the growing consciousness among the erstwhile inert masses: their resentment at their grinding poverty is adding fuel to the fire of their discontent. Either tenancy must be abolished forthwith, or at least its evils diluted with the implementation of foolproof legislation. In respect of agricultural incomes, it may be conceded that there are wide disparities, still persistent in these: firstly as between the agricultural workers and the industrial labourers and secondly between the different classes of the agriculturists themselves. Impracticable it would be to suggest the imposition of strict controls in this sphere, but wise it is to approach the problem from the practical angle, and strike at the root of the problem by encouraging ownership.

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SELECT QUESTIONS AND PROBLEMS:

1. Describe the various forms of modern land tenures, with reference to their impact, as in the under-developed and backward economies, say India.
2. Assess critically the economic implications of the tenancy systems.
3. How are agricultural relations affected by the tenancy problems?
4. Give an analytical description of the main forms of tenancy and leases.
5. What is the problem of distribution in agriculture? How does this issue differ from that encountered in general economic activity and analysis?
6. Apply the theories of Rent to agricultural conditions, critically.
7. Estimate the role of the enterpreneur in agriculture. What are the determinants of his remuneration? Is there a rate of profits in farming?
8. Which explanation of wages do you consider most applicable to farming? Distinguish between the different systems of wage payments in agriculture.
9. Assign to interest its important place as in agriculture, and bring out the implications of the interest charges on the farmer-entrepreneur.
10. Enunciate the principles on which tenancy reform should proceed in an underdeveloped country, *e.g.* India.

CHAPTER VIII

THE PROCESS OF PRICING

Agricultural Markets—Concepts and Terms: Marketing Services: Market Institutions: Market Costs: Cooperative Marketing: Market Intelligence: Estimating and Forecasting: Marketing in Agriculture. Adjustment by Pricing—Agriculture and Valuation: Price Fixing: Prices and Costs: Pricing and Markets: Price Policies: The Market Mechanism: The Price Level: The Pricing Process. Summary and Conclusions—The Critique of Pricing. Select Questions and Exercises.

THE process of pricing is completed in two stages: marketing and price-fixing. Both the stages are inter-related, though marketing precedes price-fixing. These are distinct, but intimately connected. Pricing is an important aspect of the modern monetised economies—and the village economies are fast getting monetised now. The method of approach would naturally be descriptive and analytical—a description of the various institutions of marketing, and their functions is given in the first section, while an analytical survey of the settlement of prices is attempted in the next section. It is idle to pretend that this survey is exhaustive, but is as wide as is possible within the limitations of this elementary book. Some economists regard pricing and valuation as the central problem of economic analysis; but this generalisation could not be said to apply without exception to agrarian economies, for quite a few of them are outside the range of monetary economics. Still, with growing monetisation of the agricultural economy, and especially with monetary calculations entering the farmer's mind, the prices of agricultural commodities assume a new significance, never before attributed to this aspect of agricultural economies. Marketing organisation is also getting more and more perfected and made to play its assigned role in agriculture, both through the agency of state regulation and intervention, and through the increasing consciousness of the peasant about his right to earn his own reward for own efforts. But this is anticipating the arguments, to be advanced below: suffice it to observe that this subject is important to economic analysis, and indispensable to the understanding of modern farming.

AGRICULTURAL MARKETS:

A look into the principles, according to which the marketing organisation in agriculture functions, is essential to an appreciation of the pricing process, as in this sector. The analysis is descriptive to start with—some concepts and terms have been explained, and this is followed by a description of the marketing functions and institutions. The costs of marketing have an important bearing on the pricing system, as it works itself out in agriculture. Cooperative marketing—a significant fashionable development in marketing—is next thrashed out, in respect of the pros and cons of the system, and its variations. In a separate paragraph is outlined the working of the information services, and also the methods of estimating and forecasting in agriculture, with special reference to crops and livestock. And in this respect would be discussed the utility of the same in the matter of adjustments and adaptations, which may be effected in agriculture.

Concepts and Terms:

Some of the elementary concepts and terms used in marketing economics are first explained, for they do convey specific meaning. Marketing problems are not very pronounced on family farms, except when they grow bigger and are commercially viable—surplus cropping operations necessitate the marketing operations. In the simplest system, produce is directly sold away to the consumers, without any marketing: this holds true even today of the older economies, especially in respect of perishables. The system has some obvious advantages, in that there is no middleman, and the producer knows his market. But with growing complexities of the economic structure, this practice is fading away. Distributive agencies are now intervening, and the middleman is functioning. Hence, the proper working of the modern marketing system depends upon the efficiency and integrity of the middleman, who need not always be a single person, but one of a group, of a chain, or of an organisation. They may further specialise among themselves. Briefly put, the middleman undertakes the buying, classifying, sorting, labelling, and disposing off of the produce. The functions are productive in the economic sense. Being a specialist, he is able to inject efficiency into the marketing system. It is his charges, that are objected to, for they are often exhorbitant, and unbearable for the peasant. Crudely speaking, a market may be a place, where transactions take place and bargains are struck; but in the economic language, it connotes the fact of buying and selling. It may be defined as a sphere of activity related to the price-making forces. Thus marketing adds to the value of the commodity, for it completes the process of production by placing the article in the hands of the consumer. The job of buying and selling is distinct from that of producing—it is this former job that marketing performs. Marketing is essential both for the consumer and the producer or the farmer, especially in commercialised production, that is fast developing all agriculture now.

Marketing Services:

A descriptive survey of the marketing services is essential to the understanding of complex problems, to be analysed in the following paragraphs. In brief, these services add time, form and place utilities to goods marketed. Marketing services are performed in *seven* distinct stages: assembling, grading, standardising, packing, processing, storing, transporting and financing. *Assembling, grading* and *standardising* are the first three stages, and very intimately interlinked. *Assembling* refers to collecting the produce at a convenient place: collection is done in such bulk as is regarded the optimum. This operation is significant for markets which are fairly distant. Next follows *grading;* the commodities are sorted out into different lots of uniform kinds, qualities and/or sizes; this procedure has to conform to certain set standards in order to be useful to the producer and the consumer. *Standardising* is complementary to this stage (grading), which would not be correctly undertaken without conforming to the accepted standards. Standardising is considered so important to the marketing services, that most countries have set up statutory bodies to fix the standards to which all have to conform; this practice protects superior articles from being sold as inferior ones, and *vice-versa*. The present importance attaching to standardising has grown out of the experience gained during the Great Depression and by the extension of the World Trade, especially in agricultural commodities. Two prerequisites are to preface this standardisation process: the nature of demand (it should be stable), and of quality (it should be such as to permit standardisation). Hence, standardisation is selective; but usually it starts with staples, for which international standards are being increasingly accepted. But on the whole, it is beneficial to both producers and consumers. Next stages in the marketing procedure relate to *packing* and *processing*, which, again, are interlinked, as they are often undertaken by the same person. The produce is packed in such sizes and patterns as to be most marketable, while it is processed in a manner convenient and acceptable to the consumer. Sometimes, processing is done first and then packing. The objective, in both the cases is to stop deterioration and rot, decay and damage. These twin processes, obviously, secure economy for the middleman. This is economical, especially where marketing has to be distant. *Storing* and *warehousing* are the next stages in marketing: most of the produce, being seasonal and perishable, it is imperative that it should be properly stored and warehoused, too. It is to prevent spoilage that this function is undertaken, as also to spread supply over some length of time, and ensure regularity. The *transporting* function is then undertaken. The lower the costs of transport, the wider the market for goods. Hence freight charges have to be taken into consideration. This job is split in three parts: from the farm to the collection point, from the point of assemblage to the market and from the market to the consumer. This is the most important punctuation in the marketing process. *Financing* and *risk-bearing* are equally significant functions; at least from the theoretical angle, being pregnant with certain important analytical points. Financing is necessary to aid all the various agencies of selling, stocking and distributing; and, therefore, characteristic of all the stages of production. Regarding its magnitude, it is usually proportionate to the time which is taken by marketing. The risk element in marketing has twofold implications: physical risks (against the damaging of the produce) and economic risks (arising out of price fluctuations): the former are covered by insurance, while the latter by such measures as hedging, future trading, and speculative activities. *Dispersing* and *retailing* are the last stages in the marketing process. The system of distribution is rather complicated, as it also means estimating consumers' demand—a baffling problem. The final function—*salesmanship*—calls for some training, and may not be efficiently performed by a layman. In short, the marketing functions are not so simple as might appear at first sight. Farmers may form associations for the purpose of efficient discharge of these functions, for middleman's heavy charges are often burdensome and the producers, left with a very residual share indeed.

Market Institutions:

Institutions have been developed ever since marketing became organised in economic activity. These institutions have taken up specialised functions; in their proper discharge lies the key to progress. *Fairs* were the first attempt at marketing; they were periodic and held regularly for the exchange of commodities. There were commodity, specialised, livestock, or sample fairs. State, local and community fairs also developed. Fairs, when they became established at a particular place became markets: public, diffused, and compound types. Local markets were further split up into street and specialised kinds. Open markets were developed first though the closed markets are the vogue at present. Municipalities are now undertaking marketing functions. *Auctions* came as the next important form, especially in the case of perishables: they combine the twin functions of marketing and salesmanship, arrange for the collection of the produce and its speedy disposal. These auctions in the course of time became *exchanges*: usually passing through the stage of companies. Exchanges are sales organisations devoted to marketing activities: their range of activities is wide; they are instrumental in establishing grades and standards and initiating the information and inspection services.

Another development is *local and trade boards*: these are devoted to the sale of one commodity only. They meet frequently to strike bargains about the graded and the standardised commodities; and also fix prices. Information is collected and disseminated among members periodically. Spot trading is also done, trade in futures is regularised. Reference to futures and hedging will complete this description: the *futures* refer to deliveries being taken at some future date, while *speculating* need not involve any such obligation—only the price differentials are paid out. A well-thought out contract may reduce the present pressures on demand and supply to shift them to a later date. *Hedging* is another practice, connected with speculative deals: the dealer protects himself against the risk of loss, by buying and selling at the same time, at a small margin. This study reveals that agricultural markets have been expanding and its institutions perfecting, too. Incidentally, they have become complex in their working, with the result that these are getting specialised.

Marketing Costs:

These are material from the viewpoint of the economist and the administrator. The aim is to reduce these costs as far as possible. If the costs are reduced, the producer gets larger returns, but if they become heavy, the farmer may incur a loss. Of course, due to certain reasons, marketing costs in agriculture, are heavier than in industry due to a wide dispersion of farm producers, the variations in quality and quantity of their produce and its perishability. Add to these the imperfections of agricultural markets, the small scale of these operations, and fluctuations in supplies—all these complicate matters. The multiplicity of the middlemen inevitably raises costs of marketing. The margin between the price at which the produce is sold, and the payment that the peasant receives is known as the *distributive margin*: in direct sales this margin disappears, while with large numbers of distributors (middlemen) this margin naturally widens. But this must not be confused with the selling cost; which refers to that of marketing proper and of several allied functions, above detailed. The transport costs are heavy indeed, as also those of storaging and warehousing. On the top of these is the limitation of finance, which is negotiable at high rates of interest. But the most complicating issue relates to the middleman: their number is quite large. Again, rationalisation of costs is not always possible, (except by compulsory precurements), while all the risks of marketing are to be borne by the middleman alone. Local monopoly is often the rule, and competition is exceptional among them for collusions and secret deals destroy even a semblance of it. In fact, so diffused are the activities of the middleman and so wide his range, that some sort of monopoly is invitable, and understanding between them imperative. The agricultural marketing organisation is of a rigid character, the marketing system is incapable of coping with fluctuations in the supply and demand. Of course, this fact is in keeping with the character of agriculture, which is marked with several rigidities. The high distributive costs tend to stay, because the distributive system is inflexible, and incapable of passing the advantages of remunerative prices to the producer. The producer-dealer relations are prefixed, to the advantage of the former. And above all, there are the inelasticities of costs in agriculture. Analysing costs, it is found that they consist of those incurred in transport, packing, publicity, and selling. Certain difficulties attend this analysis: of assessing the return on advertising costs, of allocating the selling costs, and of correctly estimating the marketing costs. The operational scale, in agriculture, is usually small; this fact makes the costs of marketing rather heavy. The costs of warehousing and transporting are thus heavy in their impact on the producer of small bulk. Same could be said of other costs relating to standardising, grading, processing: sometimes these become unbearable for the small producer with the result that the monopolistic power of the merchant weighs on the peasant. But the recent trends in marketing costs appear to reduce these: this is because of the extension of cheap means of transport, and state undertaking of the functions of standardising and grading on nominal charges. Regulation of marketing is responsible for the lowering of marketing costs. Cooperative form of marketing operations also works to the same end—the elimination of the middleman, the reduction of his charges, the standardisation of weights and measures, and the weeding out of all the malpractices in villages.

Cooperative Marketing:

Cooperativisation is growing fashionable in the agricultural sector, due to its increasingly proving beneficial to the villagers. Distributions of the produce is undertaken by the cooperatives at either end. Three fundamental principles underlie these institutions; democratising control of the management, (one vote for every member), restricting the dealings to members preferably, and sharing the profits on the basis of equality. Strictly speaking, a cooperative does not profiteer, but only earns some surplus, a portion of it may be divided among the members, and the rest put in reserves. The principle of mutual self-help is the corner stone of cooperativisation. Cooperative marketing functions are at either the producing or the distributing ends. The two more important forms are the producers' and the consumers' cooperatives. The cooperative marketing societies, composed of producers specialise only in one or two specialised functions, and not in all. It may be pointed out that with all the stress on the elimination of the middleman, he is still not dispensed with, for his aid is sought in several operations, though his charges have been considerably reduced, while the other incidentals and over-heads also scaled down. In the initial stages, however, the profit margin for the producers may actually narrow down, but this could not be an enduring trend, for as the advantages of cooperativisation are increasingly reaped, this margin will widen. The initial impact is often to raise costs, which however, are lowered with the increase in the number of members and the cooperatives. Other implications are: increase of the area under croppage, rise in the quality of produce, end of corrupt practices of middlemen. Certain advantages are noticeable: the spirit of service and mutual help, (common to all cooperatives), is engendered, while integration of the rural society proceeds apace. Cooperative grading, standardising and processing may be taken up with resultant benefits to producers, as also to consumers. Incidentally, the middleman is compelled to perform his services on a lower charge in that locality. Other benefits include the cheapening of credit, and lowering overheads. But the signal advantage is that production accords to the market needs: this strengthens the society. By exercising monopoly powers (if the members are loyal, cooperatives stand at an advantage with respect to the sales, and prices. But the social and educative advantages are, admittedly, inestimable. There is the seamy side too; it is difficult to succeed in regions where mixed farming practices prevail or where scattered and far-flung farming in isolated places persists, for the costs of collection are then raised. Also, cooperatives may fail to thrive in strongly individualistic communities who may not like to adopt the motto "service before self". Many a cooperative has floundered on the rock of mutual jealousies and bickerings. Again, the adoption of business methods (about which mostly the members are ignorant) may be another handicap. Outside promotion and management of societies could hardly inspire confidence among cooperatives. Financial weakness of the societies is their greatest drawback. It may, still, be hoped that the cooperatives have a bright future: for the peasants have begun to appreciate their advantages while the governments have come forward willingly to help these societies with finances. On the other hand, markets have expanded, and market legislation has tended to put a stop to malpractices there.

Market Intelligence:

The farmer is in search of stability of income: for this purpose, correct market intelligence is of inestimable value to him, so as to enable him to adjust accordingly. The information, needed, is two-fold: about the new practices of farming, storing and preserving, and about price and production trends elsewhere. In the light of this information, a modification of the existing market institutions may even be brought about, by the administration. This information can be useful to the peasants in several respects. Farmers need to become efficient: then they would be able to manage their production much better, correctly assessing the quality and the quantity of the produce, and adjusting accordingly. Introduction of cooperative marketing is often the result of the enlightenment of the producer, who may grow conscious about the need for cooperativisation, if only to gain strength. The market services may be worked out along lines designed to improve the conditions of commodities and the farming processes. The news should be so available to the peasant as to be intelligible to him.. Information may be given about the present and the potential trends, about weather, about (market) stock position and about demand trends. The news may be broadcast over the radio network; data may be compiled from rural areas and factories, so that the farmer could visualise the value of his own contribution. The news bulletins may be issued in the local language. But this is not enough: they should be supplemented with correct inspection: that will help the farmer raise the qualitative standards and also give him useful information. .Market inspection may be instituted in the interests of proper grading and standardising, to protect him against fraudulent practices and injurious adulterations. Inspection services may so be instituted as to ensure a certain quantity, by insisting upon proper grading and packing to improve loading, and haulage. Inspection for reasons of health and sanitation is very valuable indeed. In short, market regulation is good, if all round.

Estimating and Forecasting:

Market information is based on precise estimating and forecasting, done by experts. If right estimates and forecasts are made, and the news then given, they would inspire confidence, otherwise the efforts would be in vain. Correctness in the forecasts would also help planners and administrators in framing policies, accordingly. From the purely marketing angle, forecasting is helpfull to good practices, and conducive to the elimination of the wastes of bad markets. Specialised experts should take up these functions. Crop estimating has already been elevated to the status of a science, and special attention is being devoted to its various facets. Newspapers and radio broadcasts pour such reports increasingly. The nature of the estimates depends on the aims set: if the revitalisation of the peasant's resources is the objective, the forecasts are prepared accordingly, while if a food deficiency persists, they would serve that end. Greater stress is placed on the exportable surplus, if the economy is export-oriented. But the accepted objective should be the stabilisation of agriculture and its incomes. Special methods have been devised for these forecasts. Crop yield estimates have been correlated to meteorological data, fluctuations in prices, and production per acre. Though some generalisations may be inevitable, they should be cautiously made. Checking and revising the farm estimates is equally important: crop and livestock estimates are usually on acreage basis; yield and production are assessed annualy. Sample information is sometimes collected for checkups, while the rail-road statistics may be compared with crop movements, or other verifications may be devised. Even village sources may be tapped, for cattle estimates: the emphasis is on their variety and yield. On the whole, crop estimates should be more reliable than livestock forecasts. In the light of the economic and physical anticipations are all estimates made. If need be, the whole system should be reorganised in a more coordinated manner so as to give better results, with a view to increasing farm incomes. A correct interpretation of the agricultural forecasts could help in making adjustments in crops to be cultivated, operations to be started, and enterprises to be undertaken. Wage policies, cost of living indices, and planning (both by the peasant and the state) may be based on agricultural forecasts and estimates. In the backward economies, especially, the uncertainties of agriculture would be diluted to a great extent, if the forecasts made, attain some degree of precision. In short, national and local policies are sure-footed and well-founded, if based on correct trends, which have been anticipated on a scientific basis by specialists and experts.

Marketing in Agriculture:

Earnings in the field of agriculture rest on the efficiency of the marketing system, which is, therefore, of moment to the peasant, the planner and the agricultural economist. Above have been outlined the functions of the middleman, around whom the whole fabric of the marketing system is spun. Then follows a description of the marketing services, with special reference to assembling, grading, standardising, packing, processing, storing, warehousing, transporting and financing. Other allied functions are also stressed: risk-bearing, dispersing, and salesmanship. Market institutions have been given a descriptive and functional treatment: fairs, markets, auctions, exchanges, local and trade boards., Mention is made in this very connection about futures, speculation and hedging. In the analysis of costs, the distributive aspect of marketing was scrutinised, as also the selling and composite charges on the consumer, the middleman and the producer. Rigid marketing has been examined, and the scope of agricultural marketing found to be rather limited. Cost analysis has special reference to the dynamic aspects of the problem.

Discussion of the different aspects of the problem of cooperativisation in marketing has centred round the advantages, the merits, and demerits, and the application of the principles to these activities. Next has been brought out the importance of dissemination of facts, information, intelligence, estimates and forecasts to those connected with agriculture with special reference to the bases, the methods, and the objectives of agricultural forecasts. Stress is laid on the need for its reorganisation and the consequential adjustments, at the end of the section

ADJUSTMENT BY PRICING:

Prices are of signifiance to both the farmers and the planners, for in their light are policies framed. Economic sciences are distinguished from other disciplines in that measurement is possible by the rod of money: prices are the money expression of valuation—the central problem of economics. This fact calls for a general exposition of the theory of value and how it is applied to agriculture. This needs be followed by an account of the process of price fixation in the agricultural sector: detailed attention is to be focussed on the cost-price relationships, and their part in this process of pricing. The role of markets in the pricing process is underlined next, emphasis is laid on the price policies, the administrative issues, and incidence of a particular policy on the motivations of consumers and producers. Adjustment through price is also discussed. The market mechanism *vis-a-vis* pricing is described, and attention drawn to regulations and the safety valves in agriculture. And in the last instance, the measurement of the price level (its methods and utility) is dealt with as being of interests. In this respect, it may be said that the problems raised in this section are of theoretical, practical, adminstrative and social importance, and deserve pointed attention from all concerned with the formulation of policy, and for its understanding and appreciation. The reader is now beyond mere enumeration and description and is right in the midst of analytical arguments which are relevant and indispensable to making correct adjustment by pricing. Of course, what is said in this section, would not apply to those economies, that are outside the pale of manetisation and are still in the barter stage economic development: to all other economies, it is very pertinent.

Agriculture and Valuation:

An exposition of the general theory of value should be given now, from the agriculturists' point of view. In an exchange economy, pricing and valuation are significantly complex issues for they transmit to the economy the impact of the outside forces:

while the complexion of farming undergoes a change with prices. Two things stand out: prices move sympathetically, but certain prices may be exceptional, and behave independently of others. The problems raised by agricultural marketing are solved by pricing, which guides economic activity. In the working of the price system, the effect of the prices on demand, (and *vice-versa*) and that of price on supply (and *vice-versa*) have to be considered: this is the fourfold analysis of the problem. Prices are the external, monetary expression of those forces which motivate economic activity. In agriculture, particularly, the process of pricing is marked with certain peculiarities: supply is not regular, but seasonal; and goods are perishable. The theory of value, is an important plank of the general economic analysis: price is the monetary translation of values. Three principles provide the base on which the edifice of pricing is built: when price falls, demand extends, while supply contracts; when supply is greater than demand, price tends to fall; when changes are brought about in demand without corresponding changes in supply, price movements follow demand—same is true if the problem is looked at from angles other than those of demand (or supply). The reasoning is clear: sellers do increase their supplies when prices rise, while buyers contract their demand, and when prices fall, their reactions are just the opposite. Price is the resultant of scarcities, and both the blades of the scissors (supply and demand) operate to settle the value. Analysing further, demand is the more important of the two blades, for it is more effective in influencing even supply in the long run. The demand for a certain commodity *increases*, when more of it is bought at the same price, or at least the same quantity at the higher price, but it *extends* when it heightens in response to a fall in price; similarly the *fall* and the *contraction* of supply. Demand it represented by its schedule, which is a quantitative statement (of demands) at different prices. The law of demand enunciates that quantity purchased varies inversely with price: more is bought when price falls, and *vice-versa*. Assumptions are that incomes, tastes and prices of other goods remain unchanged. The responsiveness of demand to price is known as the elasticity of demand: demand is perfectly elastic, (or elasticity equal to infinity) when an infinite quantity is being purchased at the same price, while it is absolutely inelastic (elasticity equal to zero) when the same amount is bought regardless of price. Between these two imaginary and theoretical extremes, actual demand varies. Demand is measured by the anticipated, social, marginal utility of a certain product. From the seller's point of view, buyers are indifferent as to particular sellers, from whom they may purchase; demand for the sellers' product is completely elastic, under perfect competition. This analysis is inapplicable to the "prestige" products, product differentiation, and "anticipated" demand, for actual demand may behave differently. Regarding supply, the motive of the seller is to maximise his profit or at least minimise their losses. The increase and decrease of supply may be distinguished from the extension and contraction of supply in the same fashion as in the case of demand, above. Time element has also been introduced in the behaviour of supply and demand: these are *market* and *instantaneous* when they refer to the short period but termed "normal", in the long-period. The law of supply states that price varies directly with price; while the response of supply to price is known as its elasticity, just as for demand. The seller's *reservation* price is that below which the seller is not prepared to sell: in the case of perishable goods, this is low, while for durables, it is high. Also, must be taken into consideration the seller's need for money; if it is elastic, he may wait till the expected (high) price prevails, but if it is inelastic, he must convert his produce into cash. Under monopoly conditions, his reservation price is as high as it could be. The supply schedule is a table giving the various quantities available at various price levels. Value is determined where price equates demand and supply. Market price denotes the equilibrium of demand and supply. The marginal buyers and the marginal sellers act only when prices fall or rise to their expectations. In the short period, price conforms more to the conditions of demand while in the long-run it is the influence of supply that is dominant. For irreproducibles, and perishables, it is demand that settles price, while for durables, and reproducibles, it is the supplier's reserve price that rules, and below which it would not fall. Add to these forces, those of the elasticities of demand (under which price would tend to be influenced by demand) and of (farm) supply. Under monopoly, product differentiation may also persist, and the aim is to gain the maximum monopoly revenue. More of this below in details.

Price Fixing:

This is the result of the conditions of demand and supply. Price would tend to rise, when demand is in excess of supply and *vice-versa*. This is a general rule. Similarly, an extension of demand, without a corresponding extension in supply would raise price, and *vice-versa*. Similarly, if supply out-strips demand, price is lowered; the reverse is also true of demand variations. This is normal but there may be cases, when demand and supply may behave abnormally, against the above-stated laws of demand and supply. The law of supply establishes a direct relationship between supply and price, but agricultural supplies are more or less rigid. Within agriculture, however, there may be a greater mobility than between agriculture and other industries; still changes in agriculture may not be possible, except in minor operations. It is in the long-run that these changes would be effected, and not in the short-period, for the time-lag in agriculture is often of a longer duration. Hence miscalculations and losses often characterise fluctuations in the prices of agricultural produce. There is lack of price-sensitivity in agriculture, especially in family farming. The decision to alter may involve several other considerations. Reliance is placed on the time-tested and the traditional methods of production and tillage, and little attention is paid to vary them. In economic terminology, it is the *opportunity costs* that play an important role in agriculture. Price swings influence, if at all, the prospective production trends, not the present ones. There is the difficulty of estimating (as pointed above) especially in the case of joint products, which are legion in agriculture. On the side of demand, there is its usual inelasticity, which distinguishes agriculture from other industries. Fortunately, the agricultural products permit of wide substitutability, which prevails even in the sphere of food, provided the food habits are not rigid. Agricultural produce has composite demand (from any number and for many purposes), while the demand for these products is mostly derived: hence the elasticity of demand of agricultural produce is dependent on the elasticity of demand of the other types of produce. Thus, this elasticity of demand for agricultural produce is a function of the price structure and of differential prices. And in the last instance, the behaviour of demand depends upon the incomes of the consumers and is limited by them. Demand has normally an effective impact in the short-run, while supply only in the long-period. Income distribution and population trends, also, influence price trends in the long-run. Shifts in demand are real resulting from income changes. The habits of consumption, too, affect the price formation process: permeating through range of the elasticities of demand and supply. And on the side of supply, the marginal cost of production would be the minimum point below which price would normally not fall. In the case of irreproducibles, and perishables, it is the demand factor, that rules, while for durables and reproducibles it is the factor of supply (the marginal cost of production) to which price conforms.

Prices and Costs:

Prices are costs, in that the past prices become the present costs. Price-cost relationship is equally important, as also the dynamics of cost-structure. Prices of one set of commodities may be the costs of another group. Also prices are the determinants of the cost of living, in this sense they are costs. Two types of *costs* may be distinguished: *nominal* and *real*. Real costs refer to the sacrifices undergone in the productive act, while the nominal ones are the expenses of production. *Opportunity costs* afford a comparative view of the cost structure, and explain why a certain pursuit is preferred to another. *Fixed costs* are those that are relatively stable for production, even when it expands (machinery, land etc.) while the variable costs vary with expansion. These latter are alternatively known as *prime costs*, while the *fixed* ones as *supplementary*. *Marginal costs* are incremental expenses, while the *average costs* denote the average (per unit) expense. *Selling costs* are those incurred in the process of production, while the terms, *elastic* and *inelastic costs* are self-explanatory. In the long-run, the aim is to cover, both the fixed and the prime costs, but even in the short-period, the prime, current, or variable costs must be covered. The established producer (optimum farmer) recovers both these in the short-run too, while the marginal producer, only the variable costs. In farming, however, the *overhead costs* form an important part of the cost structure. In the very short period, the selling and the overhead costs could be dispensed with: the peasant is the residual claimant. In agriculture, the wages as well could be treated as overhead costs, while the earnings of the family members as *prime costs*, which are adjustable at least in theory. Agriculture is different from industry in that while machines wear out, when they are used, land requires clearing when left untilled. On the whole, the larger the undertaking, the more significant is the role of the prime costs, as the fixed costs are spread over a larger canvas. Agriculture is a small scale industry, with the result that fixed, supplementary or overhead costs are significant. This is especially true of the backward economies, where subsistence farming often prevails: hence the farmer finds it difficult to adjust and adapt himself to the changing price patterns. The proportion between the prime and the overhead costs is of relevance, for they affect output in a dual manner—these influence the number of farmers who wish to move out, when price falls, and determine the changes in the amounts produced by them. Theoretically speaking, marginal farmers would quit business, if prices fall, but they cannot for the vocation is characterised by immobilities, while alternative opportunities for them are few and far between. Again, prime costs in farming form a small portion of the total costs, and the saving by the contraction of output in this regard is very small: this small saving is not tempting enough to induce them to curtail costs. Same could be said about the inelasticity of expansion. In respect of prices and costs, there are marked inelasticities, in the agricultural sector: costs are more inelastic than prices, which are determined by the interplay of the forces of demand and supply. Four costs of production are taken into consideration: overhead cost, costs of family labour, supplementary costs (in agricultural production), and the costs of farm products, for undefined uses. Hence it is difficult to disentagle the "pure" costs of farming: only a vague estimate could be made. Under intensive cultivation, changes in output are brought about by the peasant and his family. When prices fall, he would, (if he were to contract production) suffer a decline in his family consumption, with the result that he often works harder than before to make up for the loss of his income due to price decline. Similarly, when prices rise, the farmers may work less. The system of family farming is responsible for making the costs more inelastic, than they inherently are. Hence the anomaly: while prices are elastic, costs are not. Elasticities of prices and costs affect output: the inelasticity of costs makes it difficult for the peasant to vary his output. The peasant, being the residual claimant, has to work harder, when prices fall, so that his margin remains in tact. Dynamically speaking, price changes may be twofold: those inside the pale of agriculture, and those outside it. Another complicating fact is that factors of production in agriculture are so specific, that if released from agriculture, they may not find employment elsewhere. This makes it impracticable to contract agricultural enterprises, and also to shrink agricultural output. Costs of hired factors form a small proportion in agriculture, therefore, the saving in this respect, if any, is negligible: in times of depression they do not fall appreciably, while in booms they do not rise much. Farm output is thus largely dependent on the amount of work done by the peasant and his family. In the short-run, the declining prices are unable to affect any change in the output, while in the long-run, adaptability determines to what extent the contraction could take place. Same could be said of the rising prices and the expansion consequential upon them. It is only a function of the nature and the character of a farming system, its elasticity and its complexion. Also, the proportion that prime costs bear to total costs is of paramount importance in deciding upon these changes.

Pricing and Markets:

Intimate is the relationship between pricing and markets: under free competition, it is the working of the markets that shape the pricing process. Competition—its phases and types—are examined. How are prices determined in free and controlled markets? and the market price? Effects of price changes in the different segments of agriculture are of import, while the instruments of price supports and guarantees are significant. Competition may be classed into *pure, perfect, free* and *monopolistic*. *Pure competition* refers to its quality: the amount that each has to offer and to buy is a very small fraction of the total, while products sold are of the same quality. *Free competition* is uncontrolled by any regulation. Under *perfect competition*, there is full knowledge, complete freedom and perfect elasticity of demand and supply. Under *monopolistic competition*, there is product differentiation: this is prevalent in agriculture. A number of actual situations might prevail: a combination of any of these varieties—perfect but monopolistic, pure but imperfect, monopolistic but imperfect, and pure but imperfect. The situations, usually prevailing in agriculture, are those of monopolistic and|or imperfect competition. Product standardisation is impossible, and agriculturists are often ignorant, sales are customary rather than competitive, (for there may be the secret rebate system): all these point to the fact of monopolistic competition. But imperfect competition may also prevail; the market conditions are imperfect—imperfections of knowledge, of objective standards, of quality and of price. Again, while a perfect market may not have existed in agriculture, a free market may. Regulated markets are of recent origin in agriculture, especially in the backward regions. Still the controlled and regulated markets are not so numerous as they should be: even the weights and measures are not uniform, but are being standardised in some under-developed countries. In the free and perfect markets, price is determined by the forces of competition—one price everywhere. In the case of pure and perfect competition, price approximates to marginal utility (in the short period) and to marginal costs (in the long-period). Under monopolistic conditions, price settles where marginal revenue is just covered by price, or where the profits of the monopolist are maximised. Under imperfect competition, there may be several equilibria, of a local nature and temporary character. From this theoretical framework, there are deviations in practice: a perfect market does not exist, nor does a perfect monopoly. When demand changes, the market price (which is of consequence in agriculture) is apt to change. If supply undergoes a change, price would be affected: shrunk supplies would raise price and *vice-versa*. But if both demand and supply change, the price reacts according to the relative pulls: it may depend upon the relative cross-elasticities of both; and in the case of supply (particularly), on the laws of returns and costs. Attention may be focussed on support prices (effective in raising prices to the desired level), forward prices (announced in advance of the harvesting season and guarantees and compensations. Government may institute controls and regulate prices, fix both the floor and the ceiling levels, or legislate on the market transactions. For efficient pricing, free markets are, theoretically, the best, while the elimination of price fluctuations is equally conducive to the same end. Efficient pricing means that prices are not prohibitive, nor exhorbitant, nor flunctuating; but remunerative to the producer, without damping social and economic motivation. Positively speaking, they should also be such as can endure, and above all, they must contribute to development.

Price Policies:

The objectives of the policies in respect of prices, (with special reference to agriculture) need to be studied in this context. The one aim is to make adjustment easier: this is brought about by methods of guarantees and compensations as also by proper price administration. Controlled and competitive prices also play an important role in this regard: their foremost end is to stabilise the price level and attain full employment—this involves considerations of managed money and fiscal policy. Price policies could not be divorced from the general economic objectives. Incidentally, the improvement of income is another aim, also parity with industry. The maintenance of farm incomes, (through the stability of demand), and the correct allocation of resources are other ends. Price policies are effective when both incomes and aggregate demands are fairly stable. Mention may be made of *support prices* (for the purpose of stabilising prices or support some higher levels), *forward prices* (announced in advance of the harvesting time, so that the peasant forms correct expectations) *planned prices* (outcome of the planners' policies), *flexible prices* (depending upon the flexibility of demand and supply) and *multiple prices* (which are the rule in imperfect competition). *Controlled prices* are fixed by the State. Other instruments are *guarantees and compensations,* which bridge the gap between the support (controlled) price and the *actual* prices. The main purpose is to adjust farm production to the anticipated trends of the market, as evidenced by the price-trends. But this is not an adjustment to fluctuations—it needs be distinguished as transitory. Restriction of the agricultural output is not advised either, for over-production in the absolute sense may be ruled out. State subsidies can help. In these adjustments, the end is to conserve the productivity of the soil, to store durable types of products, to enlarge family farms, to initiate improved techniques, to better land tenures, and to assist backward areas. Some of the ends may be apparently conflicting, and have to be reconciled. From the individual peasant's point of view, shrinkage of the produce (to raise national price level) is inconsistent with the welfare ends. To shrink economic opportunities on farms may be inadvisable. To reconcile industrial employment with agricultural under-employment is an uphill task. Disparity as between the agricultural and industrial price levels is another conflict. Price policies should take stock of the improving technique, and the rising productivity in agriculture. These conflicts in the individual and the public interests may be resolved by means of guarantees and compensations. But price policies, by themselves, can hardly ensure income stability, only economic stability could do that. The price policies, in order to be effective are supplemented by compensations, which may be of several types: *adjustment pay-*

ments (to adjust agriculture in the depressed areas), *transition payments* (as a temporary measure to make up the loss for the difference between guarantees and actual prices) *conservation payments* (designed to conserve the soil), and *welfare payments* (to achieve socio-economic welfare). Still, it is the price administration, which puts the policies into implementation efficaciously. Transitional policies are, often, chalked out as a temporary measure, these must steer clear of political and other pressure groups. The administrator must also remember that wholesale prices do fluctuate in the agricultural section. Total dependance on monetary methods is inadvisable, for the effectiveness of money in the agricultural sector is little. The problem of the inter-linking of prices must needs be noticed by the price administrator. Dependance on statistics is equally risky, for trends in production may be erratic. Price administration must, to be efficient, operate at all the various stages of agricultural production and distribution. Adjustment can be brought about by planning the prices: the goal is stability. Correct expectations can be evoked by announcing *forward prices*. Planned prices should remove uncertainties in prices, while their remunerativeness should not be forgotten either. Agricultural markets being imperfect, multiples prices are common: even these should be planned ahead. To eradicate inelasticities in agriculture, price flexibility should be attained, as far as possible. *Competitive prices* should not hold sway in this sector, but the *controlled* ones may: these could be pegged at such levels as may be remunerative to the peasant. Usually, the control programmes are born out of emergencies, and permitted to decay after the same are over. On the whole, there is an inter-relation between prices, incomes and motivation: this is clear enough. With the intervention of the external factors, the income effect may be much diluted; still they generally hold strong. In the agricultural sector, incentives may be inversely related to prices, for with rising prices, less may be produced in order to have the same income: the farmer's demand for income is stable. Again higher incomes may not be ploughed back to farming for the excess is usually dissipated away, and pent-up demand met. His motivation is strengthened by stabilised incomes, which are aimed at.

The Market Mechanism:

The efficiency of the market mechanism for the pricing policies, and the extent to which it could be depended upon is an important consideration. The mechanism should ensure regularity of supply and demand, so that prices are neutral as between the consumers and the producers. This means that it should bring about on adjustment between the public needs and the farming interests. Effective demand alone should be expressed in the market. Between the consumers and the producers, the link is the market and the prices. The market moves the existing supplies into the desired channels. The carryovers in the matter of stock should be such as to equate demand and supply, potentially, and serve as reserves. Quality differentials must need be taken account of by the mechanism. It has, in brief, three functions: physical (relating to stocks and supplies), the pricing (referring to equations of demand and supply) and the risk (the problem of carryovers and other uncertainties). The mechanism is capable of adaptability, its safety valves are characteristic. State intervention in the market may be of a regulative nature, but whatever the form of the regulation, it should be effective, in its operation. Since demand and supply are slow (at least in the agricultural arena) to respond to economic changes, state intervention and regulation are imperative. Monopolies operate to the detriment of the peasant and may also necessitate such policies. On the other hand, they have to save the peasants from cut-throat competition among themselves. *Price support schemes* are launched by the state, for supporting certain price levels, which may be considered as remunerative for the farmer: the peasant may be paid the deficiency between the actual and the *standard* prices, or a subsidy may be paid, or the state may be the sole purchaser in certain cases, where these support schemes may be operated as guarantees. The objective is to ensure that the peasant is freed from the worries of marketing. To be efficacions, the support schemes must be honest, effective and efficient, and operate at all levels of production and distribution. The objective of intervention in the market is to afford protection and stability to the peasants. Even in spiralling prices, the real income of the peasant is reduced. Thus from the welfare viewpoint, the policy must work to stabilise the resource prices, and the costs of farming. Quantitative controls may be combined with qualititive ones. Hence, price planning may be a potent weapon in the hands of the policy-maker and the planner. Prices and their trends are reviewed periodically to plan accordingly. Price reviews, alone, would effectively maintain the link between changes in prices and costs in the farming sector, for they apply to factors of production, too.

The Price Level:

The price level influences the smoothe running of the economy. Possibly the prices of single commodities may fall or rise, while the general price level remain stable. It is proper that some attention be devoted to individual prices, too. In this respect, index numbers are prepared: they measure the movements of prices, of farm produce, of fertilisers and feeds, etc., and are expressed in averages and percentages. A *base year* is taken, as the basis for the calculation to be made: it is usually the beginning of an era or the end of another, or some other significant time. The data, thus prepared, make comparisons easy to digest and state policies to base. The first step is to collect an assortment of as wide a range of commodities as required, the second step is to ascertain prices of the commodities thus collected, while the third is to convert them into percentage changes. Another step is to give them weights (or signify their relative importance); more weight is usually attached to cereals and staples than to others. Then these weights are multiplied to the percentages of each commodity, and a *weighted* index number is prepared. The method of averaging yields the arithmetic index numbers, while other methods may be employed to prepare the geometrical and the harmonic index numbers. Agriculture is intimately concerned with prices, and the general level. In this connection the quantity theory of money may be applied to explain the price level. As explained above, in CHAPTER I, BASIC CONSIDERATIONS, prices tend to go up with an expansion of the quantity of money, and its velocity of circulation. This theory is more or less applicable to agriculture, though not precisely, for some of its assumtions are unreal. Changes in the price level have a significant effect on the farmers' incomes and agriculture. Agricultural prices affect general price level, for they are the basic prices. Price changes and income changes seldom synchronise for the impact of prices on the different sections of the society is dissimilar. And prices of all commodities do not behave in the same manner, while there is also a disparity between the agricultural and the general prices. Often is there a time-lag before the effects of the agricultural prices percolate to general prices. Prices take time to become effective as costs. The lags tend to outweigh the advantages that the peasant may stand to gain out of rising prices, for cost price adjustment are slow. Further, the turnover of this industry is gradual due to the operation of the natural, biological, and economic reasons: hence the importance of price changes.

The Pricing Process:

This section has at least stressed the need for caution in framing price policies. The discussion is initiated with an account of the theory of value, with reference to demand and supply and their interactions in the agricultural setting, and the practical aspects of price fixing. The inter-relations of demand, supply and price are brought out in this theoretical context. It is also explained how prices influence costs and *vice-versa*. Special reference is made to the elasticies of prices and costs. The system of pricing is related to the various types of competition as prevalent in the markets: pure, perfect, monopolistic, imperfect, controlled and regulated. Price policies are examined next, their objectives, and conflicting ends studied, while adjustments sought in this respect have been anlysed and the various instruments of policy (planned, flexible, multiple, controlled and competitive prices) and through guarantees and compensations, also underlined. Special stress is laid on the working of the support price policies, and of the price administration. Attention needs be focussed on the inter-relations between the prices, incomes and motivation in the agricultural sector. How far is the market mechanism potent enough to bring about an adjustment in the system of farming, and reconcile public and private interests is stated. The range of the market mechanism is described with a pointed reference to its safety valves: the necessity of the controlled markets as against the free markets is stressed. In this connection the price review schemes are explained. And last of all, the methods of preparing index numbers are outlined, as also their significance to the agricultural administration brought out.

SUMMARY AND CONCLUSIONS:

Though only two sections, the chapter is quite significant from the analytical angle. In the first section are analysed the marketing problems in agriculture, while in the following one, the more important issues of pricing dealt with in all the aspects. The middleman's services are indispensable to the marketing process, unless there is co-operativisation. Various stages in the marketing process are efficient to its correct functioning. The several market institutions, enumerated above, are dependant for their working on local environmental, and traditional factors and forces: transplanting alien institutions would be a hazardous job, and attended with uncertain consequences. The system of marketing is more or less rigid in respect of the organisational set-up, and cost structure; the practical advice is that an element of elasticity be injected into the system. Still, the prospects appear to be that the marketing costs tend to decline, for they could not remain pitched up at the same height in view of the efficacy of the agricultural and the marketing policies and regulations. To remedy the chaos in the sphere of marketing, the proper course is to co-operativise in spite of initial handicaps. The importance of the intelligence services, of estimating and forecasting to agriculture is hardly over-emphasized: these should be perfected and put on as scientific a basis as possible. And the *conclusions* are: adjustments and adaptations in the agricultural sector could be brought about to a great extent by the proper functioning of the agricultural markets, and a reduction in the costs thereof. In the second section on PRICING, direct attention has been focussed on certain important issues in this sphere which is increasingly becoming important even in the backward economies. The theory of value is applicable to agriculture, but with certain modifications, which are underlined. Distinctions obtain in price-fixing as between the agricultural and the other sectors: there need not be much disparateness as among the market, normal, and secular prices. Similarly, the price-cost changes in agriculture are not a little different from similar relations in other sectors: there are certain rigidities, inelasticities and lags in farming, while the magnitude of the changes here is of a different character. Free and competitive markets are not the rule: they are rather exceptional: regulated markets are advocated to bring order out of chaos. In particular, price policies must be cognizant of the conflicting ends, and must aim at reconciling the various conflicts underlined above. The systems of guarantees, compensations, price supports can function properly, only if the problem is attacked as a whole, neither in isolation nor in parts. Much depends on the integrity of the price administrator, and his vision, for minor mistakes may amount to nullifying the very objectives, sought to be realised. The usefulness of flexible, multiple, controlled and competitive prices has been emphasized, as also how these may be combined to achieve the best. Above has been also stressed the importance of stabilising farms incomes, and not only prices, for providing the needed incentives to progress. It may be pointed out that the market mechanism, left to itself, could hardly be effective in bringing about the required adjustments in the system. Hence, the significance of supports and reviews constantly. The *conclusion* is that the impact of price-variations in agriculture on its different sections is dissimilar, due to time-lags, and the deviations inherent therein.

The Critique of Pricing:

Agricultural price policies have to be carefully chalked out, for they affect not only agricultural incomes, but also non-agricultural earnings. The main effort should be to canalise the farmer's energies into producing the requisite commodities, in needed quantities and qualities. Another national objective is to smoothe out fluctuations which demoralise the poor and ignorant peasant. Still another point is to secure the optimum unit of production, (and produce the optimum), by ironing out the production instabilities. Price policies should shed their sluggishness and plan ahead of economic changes (of an enduring nature), so as to smoothe the change in farming, as also ensure correct exploitation of the human, land and physical resources, and above all, achieve maximum efficiency of the agricultural system from the national welfare angles.

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SELECT QUESTIONS AND EXERCISES:

1. Describe the various marketing services as working in agriculture.
2. What are the more important market institutions in older economies.
3. Analyse marketing costs, from the viewpoint of the family farmer.
4. Study the pros and cons of cooperative marketing in agriculture.
5. Ascribe to market intelligence, and agricultural forecasting their proper place in agricultural planning, and policy-making and price administration.
6. Apply the theory of value to agricultural commodities.
7. Trace the process of price-fixing in agrarian economies.
8. Underline the correct bases on which the agricultural price policies should be framed, with a view to effecting adustments in agriculture.
9. How far is the functioning of the market mechanism in the agricultural sector different from its working in the non-agricultural sectors?
10. Follow the impact of price changes on agriculturists. How are the price changes measured? And why is it necessary to measure them?

CHAPTER IX

STABILITY AND FINANCE

Unstable Agriculture—Economic Fluctuations: Agricultural Instabilities: Types of Fluctuations: Seasonal Variations: Cyclical Disturbances: The General Agricultural Cycle: The Income Aspect: Countering the Cycle: Fluctuations and Agriculture. Financing the Farmers—Introductory Review: Differential Financial Needs: Lending Limits: Social Aspects: Long-term Loans: Other Forms of Lending: The Loans Problem: Marketing Finance: Finance for Cooperatives: Farmer's Insurance Needs: Problems of Financing. Summary and Conclusions. Select Questions and Problems.

THE twin problems of economic fluctuations and finance are usually linked; but in agriculture, they appear to be inseparably intimate. Of all the avocations that Man adopts, agriculture is the most hazardous, and is therefore, the one most frequently subject to fluctuations of many types. At the same time, instabilities attack agriculture first and leave it last of all. And for this reason, the agriculturists, more than any other class, stand in need of capital and finance. Their need for financial aid arises out of their desire to rehabilitate themselves, as a consequence of the depressions that have hit them, and|or expand in order to reap to the fullest the advantages of the booms. In any case, their demand for such assistance is of an inelastic nature, for their own resources are quite limited, and of a very undependable nature. Agriculture is pursued as a way of life, rather than a well-calculated profession—this attitude of the peasant, leaves him with little reserves for times of stress and strain, or for opportunities of expansion. If they were financially on an even keel, they could not be so badly hit by the depression, as now they are, especially in the older agrarian economies. Pursuing a very unstable profession, as they are, and exposed to the freaks of nature, they are unmindful of consequences of the same; the advice is very obvious: they need to be rescued from the cyclical disturbances, and also to be financed at the right moment and in right amounts.

UNSTABLE AGRICULTURE:

Economic fluctuations are very well-noticed phenomena, but are not of the same (identical) types in all economic undertakings. In the agricultural sector, especially, they assume a very significantly distinctive character; hence they call for some forethought on the part of the planner and the policy-maker. The problem concerns income and output in this sector: this is studied first, for the farmer's income depends upon the prices he secures for his produce. The nature and character of the economic fluctuations, in general, should be understood, before the agricultural aspect is analysed. In agriculture, it is mainly the problem of disparity with industry and other economic activities that bothers the administrator in the welfare state. Fluctuations in farming are of various types—seasonal, annual, and cyclical—and all these are analysed in their effects on agricultural pursuits. Detailed examination of the cycle—its length, duration, type and the initiating impulse—is essential to be able to suggest means to counter it. Agricultural incomes are unstable: this problem is also thrashed out, and the way out indicated. Positive suggestions for countering the cycle, in agricultural sector are made, for without them this survey, in this section, is incomplete.

Economic Fluctuations:

It was in the thirties, that attention was rivetted on the instabilities in the economic sphere: the depression of the thirties was of an exceptional nature. Wave-like movements characterise these ups-and downs in economic activity, and the consequential behaviour of business expectations, too. Four distinctive stages may be recognised: expansion, recession, contraction and revival. It is *panic* that punctuates one phase with another, and *expectations* lead businessmen from one stage to another. In *expansion*, business expands and expectations mount high. This boom is followed by *recession*, which is the turning point, for *contraction* starts as a result of damped expectations, and the release of such forces as usher in the *depression* or the actual shrinkage of all economic activity, when expectations fall to the lowest pitch and stay in that depressed state. Disinvestment brings about decline in employment, incomes and finally output. The cost-price relationships get out of tune, with the result that profits turn into losses. But, it finally leads to *recovery*, when confidence is regained, and expectations begin to revive investments, incomes, and also employment. Two characteristics stand out as pronounced: *periodicity* and *synchronism*. It is all *periodical phenomena*, the period being a multiple of 3½ years. The booms and depressions *synchronise* or are simultaneous in all walks of the economic life, and have a tendency to spread like wild fire. Other minor characteristics are: variations in the amount of money and credit, greater fluctuations of incomes but less than those of profits, especially in capital goods industries than in others. Wider are the swings of agricultural incomes than of others. Several theories have been advanced: the climatic explanation, the psychological approach, the monetary causes, the under-consumptionist analysis, the savings and investments framework, and the modern theories. The oldest probe is in terms of climatic variations: cycles of climate account for the abundance of harvests and agricultural prosperity leading to other industries prospering, and *vice-versa.* Jevons held the *sunspot cycles* responsible for the climate ones. The *psychological* theories notice the attitudes of the businessmen, and their expectations, which lead to conditions of boom and depression: when expectations are high and optimism prevails, upswings are noticed, otherwise the downswings. It is hardly convincing that mere subjective factors are potent enough to cause fluctuations of objective economic activity. The *monetary* theories stress the role of money in the causation of these disturbances: in case of facile credit and over-issue of money, the booms come about, and *vice-versa.* Financial and monetary policies do play an important part in human affairs, but not the decisive role. The *competitionists,* (or the *under-consumptionists*) ascribe to under-consumption, (to over-competition) the occurrence of depressions, for disparities of income deepen by competition, and then end in underconsumption, which precipicate in depression. Lord Keynes, in his *savings and investments* theory, pointed to the long-term trend of the equality of these two, but in the event of their disparateness, booms and depressions come about: if savings are greater than investments, there is the depression, and if the reverse trend persists, it is the boom that results. The rate of interest was thought to play an important role in bringing about this equilibrium, though it is now proven that this is not so. His disciples added to his framework the two multipliers: the *investment* and the *employment multipliers,* which are, they say, responsible for levering up or down the employment and investment potential in the economy. Hicks further modified the explanation by the introduction of the *accelerator concept,* and also pointed to the capital-output ratio as dependent on the technique and its efficiency. Among the moderns is present a good deal of difference of opinion regarding cyclical disturbances. Dr. Hayek accuses the *banking policies* for their occurrence, while Professor Tinbergen puts forward the cobwebs of supply and demand. The banking policies bring about a disequilibrium in the savings and investments, which are regarded as precipitating causes. Maladjustments in supply of and demand for goods, due to the different elasticities, are held responsible for booms and depression, which may be due to *divergent* and *convergent cobwebs.* In sum, it may be said that there is an element of truth in all the above theories, though any one of them singly is unable to account for their recurrence. It is a matter of observation that depressions start earlier in agriculture, while they linger longer in this sector. The climatic explanation, offered by the older economists—and now discarded—appears to be plausibly accounting for the fluctuations in agriculture. Whether the cycles of weather coincide with these others is still an open question, but it stands to reason that they are coincidental with agricultural fluctuations. Possibly, maladjustments in demand and supply, too, cause these swings,

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for the inelasticity of supply is greater than that of demand for agricultural production. Under-consumption may also be combined with the above twin explanations to complete the picture in this applied analysis. But it would be more accurate to say that over-production has to be taken along with under-consumption to account for boom conditions. The multipliers seem to be applicable to agriculture in a very general fashion, and not in any definite way. Same could be said about the accelerator principles, and cobwebs, too. In sum, it may be said that the theoretical framework has to be applied to agriculture with caution, for the course of the agricultural cycle is not the same as it is in the general economic activity, or in theoretical models.

Agricultural Instabilities:

Farm production is not a little different from other types of activity for it is not much under the control of the operator. Hence prices react, unadjustably, to agriculture. But fluctuations in agriculture may not be due to causes within the control of the farmers, nor within his understanding. In the first instance, there is disparity between agricultural and industrial activity: exchange terms between farmers and industrialists are unfavourable to the former. It is the terms of trade that affect the farmer's real income, for he has to exchange his goods for those of other sectors. And in this he is at a disadvantage. But sometimes, these terms are in his favour—when he can get in exchange more of the industrial goods for his own produce—when this happens, he is in a buoyant mood, and enjoys the boom. From another angle, there are disparities between his costs and incomes: the former are more inelastic than the latter. This price-cost divergence is responsible for the disparity of incomes between the two. In industry, there is no such disparity, while in agriculture, it is persistent. Disparities also exist in respect of wages and profits: agricultural profits are usually lower than the industrial ones; and the same could be said about the wages in the two sectors. The behaviour of agricultural incomes is therefore different from that of industrial earnings. Incomes in the agricultural sector are indistinguishably composed of wages and profits (being the residue left for the peasant, these could not be stable) while in the industrial sector these are rather stable, or at least not so uncertain as in agriculture. Another fact is that agricultural incomes lag behind the industrial earnings. Further, if the agricultural technique improves, the incomes may also rise, otherwise the prospects are rather dim, specially in the embryonic and backward economies, where the middleman slices away a larger part of the agriculturist's profits. Hence, the impact of agricultural disturbances on the peasant is adverse: the gains out of the booms are not marked, while the losses are significant. In case, there are boom conditions prevailing generally, the whole of the increased income may not be spent on agricultural commodities, for the demand for them is inelastic. Under a depression, the costs of agriculture may not shrink, while the prices go down: the farmers suffer. But this is anticipating the arguments.

Types of Fluctuations:

A distinctive trait is that agriculture is marked by several types of fluctuations: at least three are distinct—seasonal annual, and cyclical—while two others may be added: short-term and price disturbances. Taking the *short-period fluctuations* first, it is evident that they last for a short time, but their severity is intense. Due to unforeseen causes, (locusts, diseases pests), they befall farming all of a sudden, even the authorities may be unprepared for them. Though their frequency could not be reduced, their severity could be. Agriculture can hardly be immunised against Nature, but recovery is possible soon after. *Price fluctuations* are more frequent in agriculture than in other industries; and arise out of the rigidities of the cost structure, especially in marketing. Certain facts are noteworthy: supplies are inelastic, especially of certain commodities; the agriculturist may be compelled to accept a lower residual payment, as the middleman's charges are customarily fixed, for his position is monopolistic. Moreover, being a non-agriculturist, he is apathetic to farmers. And, the ignorance of the peasant exposes him to the exploitation, too. *Seasonal fluctuations* last only for the season; these are due to the seasonal character of many crops: the seasonality of these operations accounts for the wide disparities between supply and demand. *Annual fluctuations* arise out of the yearly variations in certain crops and plantations. *Cyclical disturbances* reflect the general business cycle. It is possible that the three may coincide, and then their total effect may be too severe to withstand. Out of any of these instabilities may arise *income fluctuations.* Price instabilities are chronic to agriculture: hence the persistence of income variations. The subsidiary industries, that may be prescribed for the villager, are sustained on agriculture; these can be affected adversely by the other fluctuations affecting agriculture. In agricultural output, are visible *output variations,* due to mixed causes, seasonal, annual and cyclical disturbances. Short-period and other unexpected fluctuations may also precipitate these output variations, while the operation of the law of diminishing returns always hangs over the farmer's head, and affects his output adversely. Hence, output instabilities are a permanent feature of agriculture, especially if the peasant is even a little out of step with Nature.

Seasonal Variations:

In this respect, demand and supply fluctuations are quite marked: at different periods, demand is diverse, while supply is notoriously seasonal in regard to agricultural produce. There may be a peak demand on festivals, while peak supply or glut in good reasons, *e.g.* vegetables. Storage is costly and difficult for certain commodities. Biological factors, too, operate in agriculture: especially in the case of livestock, and certain crops. Storage is possible, as also processing, but both are costly, while proper facilities for these are sometimes unavailable. Prices play an important role in the (seasonal) variations: price changes are sporadic and erratic, especially in agriculture. Prices fall heavily (and suddenly) after the harvesting season: for the difficulties of finance compel farmers to dispose off the produce at throw-away prices, while their inelastic demand for income makes them helpless. Price trends make agriculture more unstable, than it would, otherwise, be. And the character of agricultural pursuits is markedly seasonal; most of the instabilities arise out of this fact: the remedy is to modify its (seasonal) character, or to improve storage facilities. Annual fluctuations rank next in importance: farm produce does vary from year to year. Observation has it that certain trees blossom heavier in some years than in others, due to natural causes. Crop and produce variations, too, register themselves in respect of certain commodities in agriculture: this results in price swings, and increases the intensity of the annual fluctuations. Noticeable is the fact that the larger the area under diverse crops, the lesser the severity of the instability: the family farms are small units, with the result that the severity of the annual instabilities is much felt. Similarly, diversification of the agrarian enterprises also eases the situation: but usually the nature of these enterprises is local. And, then, the sympathetic movement of prices, as described in the last chapter, accounts for the rapid spread of these evil effects. In price formation, the elasticities or inelasticities of demand and supply are considered—but for the "processed", these may vary much. It may be repeated that storage could also be arranged if the stocks and the prices levels (present and prospective) warrant it, after taking into account the factor of storage costs. Still, the longer the period of holding the stocks, the greater the risk. As far as merchants are concerned, mercantile risks have to be faced: *e.g.* uncertainty in respect of saleability of the stocked and stored produce. There is the possibility of stocks being damaged or risk of price ups and downs, in spite of the best calculations of the best experts. Trade relations present another uncertain fact, as also variations in supply. In this respect, too, the inequalities arising out of the annual and seasonal fluctuations do not even out, but tend to persist. In annual instabilities, especially, the element of risk is

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rather pronounced: outputs fluctuate from year to year, especially in respect of certain types of produce. Framing the annual budget in terms of anual produce, the merchant may be tempted to carry stocks over a number of years, but the venture may be too hazardous for him to face. Hence, disparities in respect of annual variations and prices, tend to stratify, and may last for a number of years.

Cyclical Fluctuations:

They present a major problem, for when these come about, all the three combine and their incidence is heavy indeed. Important points in this connection, can now be discussed. Most of the variations in crops are due to the impact of weather: this fact is pertinent even in the matter of cyclical fluctuations. The farmer has continuously to make adjustments to weather, which may not oblige him, though modern science does help him understand this much better, and adjust in advance. Cycles of output, and therefore of prices, also seem to be operative in certain crops. All this reflects in cyclical patterns in crop production, and must be recognised as such. Another relevant consideration is the prospective profitability of the agrarian enterprise, which the peasant is to undertake, for this determines his choice of operations. In this respect, he takes into consideration prime and supplementary costs, demand and supply, their elasticity and inelasticity, and their trends—present and potential. For instance, when demand is elastic, prime costs bear a low ratio to the total costs, and the price gets depressed, with the resultant narrowing of the profit margin. But the trends of output and incomes form the basis of the farmer's expectations. In his efforts to widen the price-cost margin, he suffers as a result of his increased productivity, he gets lower prices and smaller profits. The effects are of a prospective nature, and cumulative in character. In respect of livestock and plantations, the process may be tardy, and sometimes not actively operative, for none would destroy the plantations or the cattle which may not yield so much next year—it is only the long-term changes that will be effective. This means that long-term cycles, alone, are effectively operative in agricultural production.

The General Agricultural Cycle:

The general cycle is a reflection of the business fluctuations: the depression of the thirties was such a one. In the depression, there is decline in agricultural prices, while a glut, (consequential upon the effort to keep the income constant) further accentuates this trend: this ensures continued fall of agricultural prices. This depression in farming is severer than it is in industry. Same could be said about booms. The initiating impulse has been detected by some in the relationship between the course of prices and agricultural production: over-abundant crops depress prices. The seasonal cycle may be thus started off, to gather momentum later and assume the form of the long-term cycle. If that happens to coincide with the general cycle, it takes a very intense form. Similarly, with shrinking production, (and increasing demand), boom conditions may be ushered in. The average length of the cycle is a multiple of $3\frac{1}{2}$ years in the case of crop cycles and of seven years in the general cycle. Still it is difficult to generalise. In the agricultural sphere, there is seldom a pure (general) cycle: it is always accompanied by some other disturbances. Hence, the duration of these cycles depends upon these combinations. The composite general cycle lasts longer: this is why in some countries, the depression lasted long; but in others, for a shorter period. Planning could at least dilute the severity of the cycle. In this connection, reference to special commodities is relevant: some crops are more important to a certain economy than others, with the result that if and when these are affected they raise complications, *e.g.* potato crop for Ireland. The incomes of the "key" farmers are affected. Thus crop cycles in the *key* commoditities may initiate or intensify other cycles. The behaviour of prices, in short, determines the course of the cycle. Food prices are quite important, for they are basic to other price systems, and also affect the cost of living, especially where food habits are rigid, as in India. The situation is complicated, because, in agriculture, the supply is static, while the demand may fluctuate, but not much. Adding fuel to the fire is the inelasticity of the cost structure. Supply is unadjustable to the fluctuations in demand; farmers lose in respect of the perishable articles. The lingering nature of the agricultural cycles is explained by the slow process of the adjustment of supply to demand. The general impression is that pure cycles are rare in agriculture, which is characterised by *composite* fluctuations. And agricultural inflexibilities are so potent as to complicate matters: hence their duration is longer than elsewhere.

The Income Aspect:

From the foregoing it is evident that the income variations are the only visible fact of the cycle. True, that incomes do not respond to these instabilities, but the course of the cycle is traceable by following income trends. In this context, population growth, real incomes technique, and cost-price variations are of relevance. The increase of population means increased pressure on land, and lower incomes, for land is incapable of increasing its supply. Excepting in the less developed economies, population has generally been under control, while agricultural production has registered a rise. But the increase in numbers in a larger part of the world more than outweighs this trend, which, on the whole, is to depress agrarian incomes, and consequently lower living standards. Real incomes in agriculture rise as a result of the application of improved techniques. The same amount of goods could be produced with a smaller amount of productive factors, with the possible utilisation of the "saved" factors in other avenues. Among people with subsistence standards, the demand for food is also elastic, since consumption has not been satiating. This demand for food may be affected by the distribution of incomes. Real incomes may be viewed in the light of marketing costs, which are usually rigid. Hence, the peasant's real incomes may not rise, due to his being fleeced by the middlemen and the distributors. The peasant's share in the real income may not be so high as the rise in the general real incomes. The usual impact of improved technique is to raise productivity, and to lower costs per unit. If improved technique is applied to all agriculture, it may ultimately depress prices; farmers may receive lower revenues for larger outputs—this fact damps their activities. But if the improvement of technique takes place outside agriculture, it may inflate other incomes and consequently, the demand for agricultural produce, with the result that the peasants' incomes could also rise. Some occupational readjustment, probably easing the pressure on land, may, as well, take place. Hence, this is a pointer to practical policy, in respect of the application of technique. General improvement of technique raises agricultural incomes. In farming, the productive factors are mostly immobile, at least in the foreseeable future. As between agriculture and industry, they are immobile. Agricultural capital and equipment is thus immobile, while only the new labourers would take to non-agricultural pursuits. But from industry to agriculture, the shift is easier: the experience in respect of the demobbed labour is that they prefer to settle back in their villages, and on land. Regional differences, too, make it impossible to generalise, as one could about industries: even technique has been differently adopted in different regions, while one piece of land may be better suited to its adoption than another. Institutional and environmental variations count for much. Mechanisation or the application of better technique in some countries may put others at a disadvantage. Cost-price variations, affect the incomes of farmers. Some regions may produce at a lower cost, due to inherent gains, or acquired traits. The lowering of the costs in one region enhances competitive power, with the result that the real incomes in that region tend to rise. A reduction in cost benefits workers. From the relative cost-price angle, it may be that its incidence is different on different sectors and regions.

Countering the Cycle:

In making efforts to counter the cycle, it may be remembered that only ameliorative measures could be adopted to fight the chance-fluctuations, while for (expected) instabilities, precautionary measures are advisable. Of all the fluctuations, the cyclical and the crop ones are the most injurious. In terms of economic hardship, it is pertinent to study the "cost". They burden the peasant, by depleting his resources, while the instabilities of income make it impossible for him to plan to improve his tillage. To the community, (especially the agricultural), they make unemployment unbearable, for they starve it of expansion and investment. The agricultural sector deteriorates, instead of improving. Immediate steps should be taken to re-stabilise agriculture: the state could act to bring about adjustments, by draining off the surplus produce, by exporting it, or at least stopping cheap imports. The basic maladjustments should be corrected, too. Subsidies, may be given, or adequate fiscal measures adopted, as in industry. Long-term remedies are advised: they would be so designed as to eliminate altogether the very causes, underlying fluctuations and their recurrence. The size of the family unit should be enlarged to make it an optimum unit, and better farming practices should be encouraged, too. And land tenures should be rationalised into good systems, and special improvement programmes launched upon for the benefit of the depressed areas. And, above all, the information services should be geared to serve agriculture to the best. The twofold remedy is to co-ordinate and plan. Assistance may be taken from the co-operative movement, and efforts made to co-operativise further in order to strengthen the individual peasant, and make agriculture economical, and remunerative. Planning is to be discussed in the next chapter; still, it may be said, that in view of the combined character of the agricultural cycles, mere distinctions between the diverse types of cycles, in applying the various remedial measures would be erroneous and misleading in practice.

Fluctuations and Agriculture:

Business fluctuations, in their application to agriculture, are distinguished by some peculiar features, they are of several types —short-period, seasonal, crop, annual and cyclical. In respect to theoretical explanations, the climatic principle seems to govern agriculture, more than any other industry, though the *cobweb* theorem is also applicable in view of the disparateness of agricultural supply and demand. Seasonal variations are relevant from the latter viewpoint, and from that of crop and livestock production. Annual savings could be interpretted in terms of variations in yield, while crop fluctuations in terms of individual crops. The long-term cycle could be precipitated by the last. In the examination of the income aspects of the fluctuations, certain factors bearing upon incomes (which are the only visible signs of the crises in farming) are noticed: population trends, improving technique, regional differences, and cost-price relationships. Underlining the remedial measures, it can be suggested that the State could always devise some fiscal steps (as in industry and commerce) to fight out the crises, and stabilise agriculture; in this connection some measures are advised: extension of information services, measures to improve farm technique, adoption of scientific routine, enlargement of the family holdings into optimum ones, and the pursuit of agriculture on an economic basis. Though the subject is treated (in the paragraph "countering the cycle") in two parts: the long-term, and the immediate remedies, it may be said that it is not always advisable to make fine distinctions there.

FINANCING THE FARMERS:

This section seeks to underline the financial aspects of the of the agricultural problem. What are the financial problems and what are the calculations of the peasant in this regard? Finally, how are these calculations influenced by the peasant's financial needs? And to these issues must be added the social and the legal aspects of loans and borrowings. The insurance aspects of the financial problem are equally important, and have to be appreciated, especially in the less developed economies, where insurance is now being encouraged. Loans for marketing and rehabilitation merit attention, for most of the peasant's activities are concerned with the marketing of his produce. The financial and loans problem is significant not merely from the peasant's angle, but also from the social and the administrative viewpoints, and has far reaching effects on the body-politic.

Introductory Review:

In the first instance, the needs of the farmers have to be assessed, and their loans classified from the various angles: their needs arise from the indispensability of farm credit. There are quite a few categories of loans. A good credit system facilitates adjustment between those who have enough and to spare and those who are in want, while ensuring security and stability for the system. With the increasing trend towards peasant-ownership, the need for financial assistance has become imperative and urgent. Landlords could, if they wanted to, supply credit for the improvement of farming, for they are men of means, but mostly they are not interested in anything good except in their pound of flesh. The resources of the family farmers are limited much, with the result that they require monetary help at all stages. But in this caution must be exercised to avoid maldistribution of capital. *Classification* of the loans is influenced by the needs of the peasants: these may be *productive, non-productive,* and *unproductive* or *wasteful;* and they may be *specific* or *non-specific* loans. These terms are self-explanatory. There may also be *rehabilitation, improvement* or *marketing* loans, the last being very common. Loans may be classed from the angle of security offered: *secured, unsecured, land mortgage* and *produce mortgage* ones. The *source* point of view is equally prominent: *co-opertives, state* and *money-lenders.* From the *time* angle, they could be grouped into *short-term, long-term* and *intermediate-term loans.* The purpose and use of the loans is of significance, too: if the purpose is unproductive or wasteful, the rate of interest is high. Possibly, the declared purpose may be different from the actual one. The actual purpose and the use must be the same as the declared one for their divergence leads to collapse of even the solvent peasants. Institutional credit sources would tend to make sure that these are identical: loans may be given in instalments and in the form of goods. In respect of *securities,* it is generally land, or ornaments or the person of the peasant. Personal securities are offered to negotiate unproductive and wasteful loans, while against land are often negotiated (long-term) loans. Property is sometimes pledged as a security, but of this the peasant has little. Usually, mortgage credits are used for the purchase of land and buildings, while personal credits for short-term, unproductive loans of an urgent nature. *Collàteral* forms are common, where the valuation of property justifies them. Mortgage credit is supplied by specialised agencies, *e.g.* the insurance companies advance moneys in the form of real estate mortgages. It is possible to lend in the form of equipment, which may be sold on a hire-purchase system. Interest, which is a payment for the use of credit, reflects the demand for and supply of finance. A rural credit system raises the rate of interest and also increases the value of the farm credit. With a higher rate of interest, the utilisation of capital is restricted much.

Differential Financial Needs:

These determine the range of the credit use in the community. Though some generalisations may be attempted, yet it would be correct to take individual needs into account. Long-term variations, for instance, may be in respect of prices: these influence both the rate of interest and the extension of credit. With prices rising, the implication is that the peasant is willing to invest more in the present so as to benefit from the prospective anticipated rising prices, as the price-cost margin may be high, and remunerative for him. But often it is the lender, who is more calculating than the farmer, since he does not lend when prices are to decline. The cyclical changes in this connection must distinguish between productive and unproductive trends in farming. In fact, the unproductive needs of the peasant are often regarded as urgent and inelastic by him: hence the high rate of interest. The family and the subsistence farmers, particularly, suffer most in the depression periods. The needs, in times of depression, are also inelastic. During the boom, farmer's credit-worthiness rises, with the result that the lender is more willing than ever, to lend, and on easy terms. In the depression the demand for productive credit shrinks, while in the boom it does expand. Price-cost changes, too, have an influence on these differential needs since these relationships determine the range of profits. Anything that goes to depress costs, widens the profit margin, (and the expectations for the same): this explains the inflated demand for productive capital. But if these relationships are reversed (prices lower than costs) the demand for unproductive debts heightens. But to these a rider needs be attached: personal considerations modify the purely price-cost relations, and the needs arising therefrom. The cost-price differentials, in respect of different individuals, may not be the same, either. Credit needs emanate from land tenures, too: the landlord, the peasant-owner, and the tenant do not have similar needs in respect of finances. Usually the landlord does not need capital, for he is often a moneyed man, same could he said about croppers who offer their labour, everything else being supplied by their masters. The peasant-proprietor needs financial assistance acutely, while the tenants and the landless labourers could not get accommodation to the same extent, due to the lack of security they could pledge. Hence the stage, at which a certain tenure operates, determines the financial accommodation available to peasants and the nature of their needs. Individual differences account for these diversities of needs. It is contended that debts rise with the credit-worthiness of the debtor: this is evident enough, though this is not desirable at all. Also, the ratio of the productive to the unproductive debt determines the credit needs. With an unprogressive outlook, the peasant seeks unproductive loans, while with a progressive view on life, he avoids these. Capital accumulation is attended with certain uncertainities in rural areas; with big landlords, and money-lenders, this is possible, but they usually extend and encourage unproductive loans. Heavier taxation of the moneyed men reduces the possibility of the accumulation of capital in the rural areas. But this has also weeded out, though not quite, most unproductive debts. Still, the rise and growth of co-operative societies has tended to encourage the accumulation of capital, even among the poor agriculturists—it has at least sucked up the surpluses from these sources, and stemmed the rising tide of unproductive and wasteful spending, at least among the illiterate peasants.

Lending Limits:

These are limits to which different borrowers may seek loans, and to which the lenders may be willing to lend. The peasant is only a residual borrower, for he is accommodated, when no other investment is possible. For individuals, the limits are determined by their resources and requirements. In the case of the lender, the total, liquid cash that he has is the limit to his lending. For secured loans, the amount and the nature of the security sets the limit, but for the unsecured loans, personal influences count. In banking institutions, the amount to be lent is limited by deposits and policy, which is guided by the Central bank. Their cash reserves often shape their loans policy. In this case, too, it is the residual funds which are available for investment in agriculture, unless the banks are specialised. In respects of their loans, the two types are the mortgages and the short-terms: both being fully secured. Credit corporations depend upon deposits for lending. They lend within safe limits, their loans are secured, and of a current nature. Land banks give loans on land as security: often legislative measures set the limits, or central banks. These institutions lend for long-terms, to encourage permanent developments on land. But to the extent, they can lend out of the members' funds, limits are automatically imposed on them. For State agencies, there is no limit, for their funds are limitless. Lending by the State is both direct and indirect, or specific and non-specific. The existing credit structure is based on the fact that the peasant is the residual borrower. All the various financial institutions maintain their stability intact, and lend on this basis. Two things influence their ability to maintain a high ratio between funds, liabilities, and assets: the profitability of the investment and the security of the loans made. Usually, the lender is interested in making a loan, which may be repaid without difficulty, and also in assuring a good return on it. Twofold is the limit—the personal-financial, and the ability to repay. The borrowers' repaying performance is the basis of his ability to negotiate a loan. The position on the side of the assets should be positive: current assets and liabilities and the present worth are figured. Specific securities influence the grant of loans to the peasant: *collaterals* are reckoned. In long-terms, they take the form of real estate while in the short-terms they may be specific. Secured loans require certain formalities. But they may be self-liquidating. Still, financing is not possible on the basis of the collaterals alone: farmers cannot offer one, since crops may not serve this purpose, farm-property may already have been pledged, while the security actually offered may be unacceptable and legal difficulties may arise, in pledging. Without the borrower's ability to repay, the loan may not be negotiated, unless there are pressures and forces, other than economic. This ability to repay is determined by the net income and its continuity; other noteworthy factors are the productivity of the enterprise, the marketability of the produce, and the cost of living of the family. Social considerations may also play their part in this. The habits—psychological and financial—of the peasant influence his ability to repay. The profit margin is a prominent allied consideration. Another factor, to be taken into account, is the risk factor, which in farming is quite prominent. This is potent in determining the rate of interest, which varies directly with the risk.

Social Aspect:

All debts have relations to, and impacts on society. Short-term loans are freely negotiated among the peasantry, from various agencies. The demand for these loans arises out of the needs of the new settlers who do not have the capital necessary for them, this demand grows intense in an era of falling prices when loans are for rehabilitation purposes. Supply comes from the profit margin, and the savings habits of the people as influenced by the rate of interest. Theoretically, the rate of interests should be low, but when the risk factor is pronounced, this charge is high. Institutional credit may be mentioned in this connection: this is provided by the co-operatives and the banks, though the state may also be an additional source. Banks—the branch, the chain, and the independant types—lend on the basis of the security. While the branch banks have to await the sanction of their head office, the chain banks and the independant types do not observe any such formality. Well-organised co-operatives (if financially sound) have useful functions in this respect: they evoke a lot of enthusiasm and confidence among the rural people. The specialised loans agencies extend credit for productive purposes only. State sources may be regarded as distinct: loans are advanced on the recommendations of the local officials, and mostly to avert some disasters. The Central bank could take a bold initiative in advancing money, through co-operatives—this is done in India. The state agencies could be socially useful in that the cost of their loans is low, while short-term lending could be undertaken at an extended scale, as also the long-term lending. In respect of the latter, there are many agencies: the bankers and money lenders, the insurance agencies and the state, as also the banks (land mortgage). But, often these agencies are external; this is due to the length of the term and the heavy sums involved. These loans are not liquid, for they are to be repaid after a long time. Most of them are secured and covered, or against mortgages. Financing by the insurance companies (and other such institutions) is, usually, confined to the "stable" regions. Even these have to work through local agencies. This type of assistance is of a selective type. Land banks, if well-financed, can be useful, but in practice they flounder on the rock of bad debts. Bankers and brokers too provide finance for the long-term, but on a restricted scale. This lending is on the basis of references from middlemen, but is also undertaken directly, and on the security of land. The growth of institutional credit has tended to minimise the importance of this source. Government is a potent factor in long-term lending for rehabilitation, development or tiding over distress. Dispersed through the local government agencies, they could be more useful, if liberalised, for the interest rates are low or nominal. But procedural difficulties and red-tapism make it hard to get loans. It is the legal aspects of these loans, that determine relations between the debtors and the creditors. Lending creates obligations and contracts between the lenders and the borrowers. There are some legal formalities, too, which have to be observed *e.g.* those relating to documents, guarantees, securities and endorsements. There may also be conditional sales, or some other means of redemptions. From the economic angle, the legal formalities should be of a regulatory nature, and not penal. Not only from the point of view of the debtor, or the creditor, but also from the social angle, the social implications of the debts and loans are of much importance: the law must only be regulatory, so that there may not arise any complications therein.

Long-term Loans:

In dealing with long-term finance, it may be observed that the lending limits of the different agencies, are determined by the amount of funds available for this type of lending, and by their loans policies. The margin of safety in the collateral needs be also taken into consideration. Land values are capitalised so that these limits are not crossed. From the point of view of sound and safe credit, the lower the limit, and the greater the margin of safety. As pointed out above, these loans are used for developmental purposes. The hire-purchase forms of investment are also long-term loans in fact. A proper appraisal of the pledged property is necessary in this connection: if this is not made, a high rate of interest may be charged. Two general bases are the comparative sales value and the income analysis. The first basis has already been discussed, while the second is only its income translation. Gross income of the peasant is estimated, secondly his expenses, thirdly the potential income, fourthly the modifications and trends thereof, fifthly the adjustments in respects of the same, sixthly other incomes and savings, and seventhly, the net income in the light of all these points. In long-term loans importance attaches to the security and its depreciations. Adjustments are made in respect of the ability of the borrower to repay loans: hence the importance of repayment plans. Incomes from fixed capital are not stable, nor are the other incomes dependable.

Systematic, and regular payments, though desirable, are not possible always. The most common repayment plans are in the forms of instalments, or by means of amortisations (which means the paying off of the debt by a sinking fund). Payments should be in reasonable instalments: reasonableness according to the ability of the borrower. Crop payments may be made, or other types of flexible plans (*e.g.* the *sliding scale*, worked out for special borrowers) worked out. In sum, the main issues in this form of lending are to equate the loans to their purposes, avoid too heavy debts, as also too frequent purchases of lands—so that prices may not become speculative. Nor is it advisable that the excess income be all channelled into the repayment of the loans. Proper amounts in which the instalments are to be paid, and their timing, (when they should be paid), should be definite.

Other Forms of Lending:

Short-term loans are more frequent; and, therefore, more important: nearly all family farmers negotiate these loans. The chief sources are the individual merchants, money-lenders, banks, credit corporations, co-operatives, and the State. The personal reputation of the borrower does count for much. His financial conditions matter as also the *collaterals* offered by him. But the security requirements in these loans are not heavy, nor rigid. Unsecured and personal loans are common. The required collaterals are often of the self-liquidating type. Three types of loans may be distinguished: the crop, the cattle, and the general-purpose ones. The first is based on the borrowers' needs to carry on the cropping operations successfully (these may designed to cover the cases of crop failures), while the second are for the purchase of cattle and|or feed, and may require that cattle be pledged. The third type are not specific, therefore suited to the requirements of the peasant: these may be for unproductive or even wasteful purposes. Sometimes the loans may be renewed, too, and on better terms, *e.g.* conversion of compound interest into simple interest. Always the lender must know the financial setup of the borrower, his assets and liabilities. Hence, the advisability of inspection and appraisal. Also, that is the reason why this lending is confined to local financing agencies, who know the borrower intimately. The *intermediate* loans are negotiated for the purchase of workstock and equipment for dairy cattle, or breeding herds, for such improvements as need some time to become effective: these do not involve very heavy sums. Instalment repayment is preferred, and varied to suit the individual borrowers. It is out of the current incomes that these loans have to be repaid: these loans should not be created in isolation, but along with other liabilities—great care and caution are necessary. The *emergency* loans are advanced for the purpose of tiding over an emergency. These meet the uncertainties of farm production and help him in his hour of need. But, born out of disasters, it may be difficult to repay: the demand for them could not be pre-calculated. Usually the private agencies exploit the situation: it is advisable that the State should come forward to extend this aid. *Temporary* loans are for very short period, (not renewable) and not for specific purposes. They may be productive, unproductive, or wasteful in their purposes. They may be of a "meanwhile character", to face a temporay stringency, and help debtors in their makeshift arrangements. Often, there is no security demanded or insisted upon, nor is there any complicated procedure or formality.

The Loans Problems:

The problems of administration, servicing, collections and carryovers, in respect of agricultural lending, is of special import. From the socio-economic viewpoint, the amount of money involved is not so material, as the relations to which the loans may give rise. In the first place, the lending agencies should service loans in such a manner as to be sure of their recovery, and maintain good creditor-debtor relations. Losses (bad debts) and high costs of repayment have ultimately their incidence upon the peasant. Therefore efficient servicing is of significance. The test of good servicing lies in the collections and the carryovers: collections must accord to the terms of the loans contract, while carryovers should be minimised. A definite programme for the liquidation of the loan is essential to the efficiency of its servicing, while carryovers may be indispensable in times of falling prices, or some natural disaster. But in cases of general delinquency, some measures of relief are called for, and should be undertaken by the State. Secondly, the administration of loans, especially in times of stress and strain (when debt delinquency grows) needs to be sympathetic, and realistic: this requires detailed attention by the lender and the authorities; advisedly, the principle amount may be reduced, in case a large interest payment has been made already. Thirdly, difficulties, experienced by the low-income peasants, are supreme: larger numbers belong to this group. In times of depression, they would like to find some relief, which may take the form of a reduction of the principal, or the interest, or grant of a moratorium, or even smaller amounts of payment instalments. But the best alternative would be for the State to come to his rescue: this is the significance of this problem to the administrator. Fourthly, in respect of lending to tenants it may be stated that the security offered is generally not tangible: it is only on the basis of the personal guarantees, and endorsements that they seek loans. Borrowing from the landlords may be on hard terms: recoveries may be in the form of enhanced rents. The

State could legally lower the rate of interest or grant a moratorium for the duration of depressed prices. But, all this depends upon the cordiality of the relations between the landlords and the tillers. No set formula could be given; but each particular situation needs a specific remedy. And, lastly, it is the loans problem that concerns the debtors and the creditors alike. The creditor must know the repayment plans, the purposes and uses of the loans, while the debtor must be aware of the implications of the loans, and his position in times of hardship. These things must be clearly understood. Usually, the repayments are low during depressions and bad debts accumulate, while in booms, they are all cleared off. In short, the loans plans would mean adjusting the amortisiation of the debts, formulating the repayment schemes and their implimentation. In sum, it could be said that the problem of the loans is manifold, as outlined above, highly personal and local in its character, and one which requires constant adjustment and readjustment to adapt to changes.

Marketing Finance:

In a highly seasonal avocation, (as farming is), the gravity of the marketing problem is inestimable; this has already been brought out in the last chapter. The assets of the peasant are highly illiquid, that is why he needs financial assistance in marketing his produce. The requirements may be assessed in the light of these considerations: cash for the purchase of the produce, advances to producers, incidentals for marketing, handling and allied functions. Also, different are the needs of the different producers and different crops. Finances are usually drawn from invested funds, represented by stocks and shares, while long-term borrowings are another source, especially for mortgage finance on plant or stocks in hand. Short-term finance may as well be necessary. It is not the gross earnings that matter but the net earnings: the merchant adjudges his financial stability. From this point of view, there are the *current ratios* (assets|liabilities) the *running ratios* (quick assets|quick liabilities) *long-term ratios* (to adjudge solvency), *book value* and the *earning ratios* or *returns* that have significance. Merchants like to put their business on a sound financial basis. The bulk of their capital is owned, while debts are minimised, as also operating expenses. Purchase of produce from the primary purchasers is financed, often for storage purposes. And money may be needed for speculation—this must be discouraged. Merchant credit finances marketing: the costs of this credit must be the minimum possible. These costs are composed of three constituents: interest on funds invested and tied up, costs of book-keeping and accounting and losses and bad debts. Sometimes, definite limits are laid down in individual cases, while cash deals are encouraged by the offer of discounts. Or conditional sales|contracts may be used. Speedy collections are insited upon by some other merchants. The correctness of any policy is to be adjudged in the context of the special circumstances, and its results. But all this could be smoothe and successful, if the links between the merchants, the bankers and the producers are intimate. In this respect, money is required for warehousing and storaging, also. This may involve some expense for insurance of the stored commodities against loss. Proper storage encourages a regular flow of the commodities to the market. In this matter, warehousing receipts could serve as collaterals for securing loans; but storage must be done in such a manner as to avoid any subsequent losses. Relations between the bailer and the bailee determine the grant of the credit, while warehouse securities also affect these.

Finance for Co-operatives:

Co-operatives have the advantage of inspiring the peasants with the ideals of self-help, and also promoting the practice of restricting the credit to the resources of the community. Credit unions are formed by people linked in bonds or common interest and living in the same community. The rate of interest is low, the savings of the members are pooled, and lent to the poor lot. But the handicap is in the low amounts, which these unions can spare for lending. Loans associations feature the American society: they grant, service, and collect loans. Their bonds are invested in land, through land banks. Morgage institutions extend (mortgage) credit to the peasants. Their original is traced to the German Landschaften. Amortised loans are advanced by these "banks". They are struck by the usual malady of the lack of funds. They issue bonds, secured by mortgages, and guaranteed by the State; central banks also assist them financially. In short, the financing of the co-operatives is a tough problem: credit associations do not have funds sufficient to sustain themselves. Co-operative banking institutions usually finance the co-operatives, but with their expanding needs, that is not sufficient; more money may have to be raised by means of bonds, subsidies from the State, and the central banks: still this problem should be solved in the context of local needs.

Farmers' Insurance Needs:

The insurance system has extended to all forms of economic activity: cattle and crop insurance have now been perfected. Insurance is both a form and a source of finance, as also a provision against the risks and hazards of farming. The aim is to stabilise farming operations, and make available to the peasant the required finance, especially at the time of an emergency. A crop—always a source of anxiety in times of calamity—need not be worrisome, if insured. Also, insurance gives the peasant the much-needed experience in the matter of community savings. The common form of insurance is co-operative. The usual organisation is: the board of directors, some advisors, and votes allotted on the basis of the insurance, policies, investments, shares and stocks etc. In the case of joint stock companies, liability is limited, while the co-operatives may have unlimited liability. Operational practices include the appointment of agents; while the drives for membership are designed to invest these organisations with some security. There is a multiplicity of forms of insurance: fire, crop, cattle, windstorm, life and accident. Finance is secured by means of premiums, assessments, membership fees, contributions, deposits, and borrowings from the state and the banks, which may be interested in promoting and encouraging insurance.

Problems of Financing:

Complicated and several are the considerations in the problems of financing. On the part of the peasant, there is the inelasticity of demand for funds, due to his limited resources and low staying power. Hence, dependence upon external finance for the pooling of the community savings may also not solve the problem, either. The main types of finance required by him are: short-term, intermediate-term, long-term, marketing and co-operative. To these may also be added the temporary and the emergency loans. All types of financial needs should be scrutinised in the light of the problems of agriculture. Short-term finance is mainly arranged within the community: the individual money-lender and the merchant, while the long-term finance is mainly available from the external sources. The peasant's need for long-term finance is elastic, while the demand for short-term loans is very inelastic. Peasants' needs are differential, varying with cyclical and other changes, and instabilities in the agricultural sphere. Lending limits differ with different agencies. In regard to the social aspects, the best agency to stabilise the relations (including the legal ones) is the State. Marketing finance, and insurance needs of the farmers have also been examined, though the unsolved problem is of the co-operative finance.

SUMMARY AND CONCLUSIONS:

To sum up this chapter, it may be said that no single explanation could be given of agricultural fluctuations. Still, two important factors may be regarded as the most relevant causes of these fluctuations—the comparative inelasticity of the conditions of demand and supply in this sector and the influence of the unpredictable forces responsible for agricultural production. The perishability of the agricultural produce, coupled with its high costs of storage are, of course, the contributory factors in this

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regard. The cost structure in farming is notoriously inelastic: this makes for the intensity of the cyclic ups and downs. The real incomes—and these are what count for in any economic activity—depend upon the exchange terms, as between agriculture and the other sectors: they have to be improved. The immediate and the long-range remedies are both effective, though it may be pointed out that while the former may only be palliatives, the latter are essential to prevent the on-slaught of the cycles. But above all, the extension of co-operation is advised, to strengthen the farm community and rejuvenate their financial resources. In financial aspects, it is established that the financing of the co-operatives is an important aspect of the problem of financing the farmers, and their enterprises. Though the State is the most important single agency for agricultural finances, yet its help is channelled through local officials and is limited by the procedural and red-tapist formalities. The financial assistance must needs be adjusted to the repaying capacity of the peasant. Market financing is another important and relevant factor in the whole picture: this must needs be strengthened in order that agriculture becomes remunerative, and the root causes weeded out in toto. Another device is to extend insurance facilities, which may also improve the financial stability of the individual farmer and the agrarian system particularly. The multiplication of the lending agencies has been responsible for facile credit, and even over-indebtedness of the peasant: hence, it is advisable that instead of further multiplication, consolidation and extension of one superlative agency—co-operative credit—be brought about.

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SELECT QUESTIONS AND PROBLEMS:

1. Underline the main characteristics of the agricultural instabilities. Give their main types, with special reference to condition in India.
2. Distinguish between seasonal, annual, cyclical, price and crop fluctuations.

3. How are the incomes of the agriculturists affected by disturbances of a cyclical nature? Discuss this effect with reference to backward nations.
4. What measures—immediate and ultimate—should be adopted to counter the agricultural instabilities? Which of them are most effective?
5. Assess the differential credit and financial needs of agriculturists.
6. Measure, in brief, the lending limits of the various financing agencies, in respect to the different classes of the borrowers in agrarian sector.
7. Suggest methods to improve the financial aspects of the agricultural problems, with special reference to backward economies.
8. Survey the distinctive features of marketing and cooperative finance with special reference to condtions obtaining in agrarian economies.
9. Estimate the insurance needs of the farmers, the aims and objectives of agricultural insurance, and its various forms, and financial needs.
10. Distinguish between long-term, short-term, intermediate-term, temporary and emergency loans. Survey the loans problem in this context.

CHAPTER X

SURVEY IN PERSPECTIVE

Brief Recapitulation—Basic Considerations: The Picture: Environmental Angles: Production and Nature: The Problems of Labour: The Production Effort: The Sharing of Produce: The Process of Pricing: Stability and Finance: The Linkage. The Farm Perspectives—The Farmer: State and Agriculture: The Cooperative Movements: Planning for Agriculture: The Future: Farming Perspectives. Summary and Conclusions—Agricultural Welfare. Select Questions and Exercises.

THIS last chapter is to survey the problem in its proper perspective and to have a probe into the future of agriculture from the socio-economic angle. It cannot be claimed that the problem has been exhaustively dealt with: only the main points have been touched, for it is impossible to assess it from all the various angles, from which agricultural economics could be viewed. In the two sections, that comprise this chapter, the attempt is to recapitulate the problem, as it has been stated so far, and to visualise, in the light of the foregoing, the future prospects of agriculture. It is necessary to consolidate the different and varied aspects of the whole issue of agricultural economics in one single section. So that they do not look as merely disjointed parts of the subject. This preliminary statement is to serve as a preparation for a peep into the future of agricultural economic activity, and, above all, the most important person—the farmer.

BRIEF RECAPITULATION:

In the birds'-eye-view, that now follows, is given a consolidated statement of the problem of agricultural economics. This is an effort to summarise the main conclusions of the foregoing topics, dealt with, above. Also remains to establish the linkage as between the different chapters, to bring to light the underlying theme and its consistency. Manifold as the problem of agriculture is, its economic aspect is accordingly complicated and diffused in its expression. Thus the attempt is to weld into one whole the variegated aspects of the argument, and then to view it from a detached angle. Admittedly, the argument is related to the discussion of the problems in the less developed economies, but that bias is unavoidable, in so far as agriculture and the allied pursuits dominate such economies, to a much greater extent, than could be, possibly, imagined. In fact, the whole fabric of economic activity in these regions, is spun round the main vocation agriculture. But, this is not to suggest that the conditions in the advanced regions have been neglected: the subject in hand concerns the agricultural systems, and is therefore, concerned with these enterprises anywhere. Still, it needs to be pointed out that in these economies, the conditions in the agricultural sector are more often than not, similar to those obtaining in the less developed areas. The parallelism goes farther than this, for agriculture everywhere is destined to play a fundamental part in the national economy: this is being increasingly realised now. The point need not be stretched, for it is agreed on all hands, that of all activities, agricultural activity is the most backward, probably because it suffers from the limitations and handcaps imposed upon it, rather severely, by Nature, which, in spite of the advances made by Science and Man, still remains supreme and unconquered, at least in the agricultural sphere. Biological and physical factors dominate it even now.

Basic Considerations:

The FIRST CHAPTER defines some of the basic concepts in agricultural economics. Various topics are discussed: the nature, substance and scope of agriculture, the subject matter of agricultural economics—its departments and the links between them; some elementary ideas of economics (the parent science) with its analytical and descriptive background; and above all, the motivation problem in agriculture. Agriculture, even in this industrial age, is the biggest vocation of Man. It is thus described as the primary industry, while the others—manufacturing and commerce—are secondary and tertiary ones, being based on this primary vocation. Agriculture is regarded both as a science and an art, for various reasons. Soil and fertility are important, for all agricultural production is broadbased on land. The factors contributing to fertility—human nutrition, and chemistry, biology and mechanics—have been underlined. Equipment and engineering are improving agriculture, while extension and education are uplifting farmers. In respect of the subject of agricultural economics, it is pointed out that its scope and subject matter covers all the economic aspects of agricultural activities: distinctions between agricultural, rural, agrarian, and farm economics need to be stressed, for ignoring them would lead to mental confusion. The departments of Agricultural Economics are equally signficant—rural sociology, land economics, production, marketing labour, credit and finance, and planning. The departments of study are closely inter-linked. In this context, it is proper to study the elementary concepts of the parent science of Economics, so as to equip the reader with an analytical framework, to enable him to appreciate the various theoretical problems and issues in their proper perspective. Economics is traditionally departmentalised into consumption, production, exchange, distribution, and public finance. But it is more fashionable now-a-days to view the problem from the dynamic and not the static angle. Hence there is no adherence to the departments of agricultural economics; the subject matter is dealt with as a whole. Socio-economic motivation in agriculture is a complex problem: distinctions obtain between motives, incentives, attractives and ideals. A proper appreciation of the role of each of these is necessary for the policy-maker and the planner. In *conclusion*, it is pointed out that on agricultural welfare depends the welfare of a large section of mankind, motivation should be correctly dealt with to avoid complications and to steer clear of the various blunders that are usual—in agriculture ideals play an active role—and that the principles of economics have to be wisely adapted to agriculture. In the last instance, it is stressed that the problem must not be attacked piecemeal.

The Picture:

A study of the basic and introductory concepts is followed by an examination of the main characteristics of the agricultural economic activity. In this connection, the role of the agricultural economy is assessed in the modern world, the various forms of rural enterprises, operations and systems, related to agriculture, before launchnig on an analytical survey of the prominent issues in agriculture. Next, CHAPTER II, therefore, punctuates the argument in this book, from the merely introductory stage to the analytical one, by giving a description of agricultural activity in the present day world. In the five sections, in which the chapter is divided, the survey of agriculture in the modern world is given, with a description of agriculture in the national economy, followed by a bird's eye-view of agrarian enterprises, agricultural operations, and systems. The subject covers the food and the raw materials aspect, the impact of progress and prosperity, the working of the F.A.O. and the impact of wars in this sphere. On the domestic front, are examined the national policies, the concept of the balanced economy, and the social and individual standpoints. In respect of agrarian enterprises, the coverage extends to a classification of the enterprises into direct, indirect and spare-time ones, and the description thereof. In the section, "operations of farming", special attention has been devoted to the farm and livestock operations. The description of the agricultural enterprises included such topics as interfarm, group, cooperative and unit systems of cultivation. Special points noticed in this chapter were the rural movements which have evoked quite some consciousness among the peasantry, the priorities of agricultural self-sufficiency (especially food) in the national policies, the human point of view in the agrarian enterprises, the personal factor in the operations of farming, and the growing strength of the cooperatives in the modern world, especially in the agricultural sector. The substance of this descriptive survey is that the man behind the plough is the most important single factor, determining the success of all the various enterprises and operations, while cooperativisation would help to rescue him from becoming a mere creature of the environments, in which he lives.

Environmental Angles:

In sequence to the description of agriculture in its various phases, stand the environments of the farming system, together with an account of the village organisation and a study of the problems of the location of agriculture. The two sections of CHAPTER III relate to delineating the agricultural environment —the village—and the analytical issues of the location of agriculture. Subjects studied are: rural structure, the types of villages, the correlation between them, and the dynamic aspect thereof. In the section on farm management are examined the issues bearing upon the management problem, together with a detailed analysis of the management function, with special reference to agriculture, and special farms; this was rounded off with an enumeration of the factors responsible for success in farming. In the discussion of the theories of location, prominent place is assigned to the determinants of location, and the valuation of farm property, which has an indirect bearing on the locational problem. It appears that rural organisation is more plastic than farm organisation, while the correlation between the two is remote. Still, farming systems and agricultural operations do affect the rural set-up. Rural dynamism has not become an established fact, and the ruralites are experiencing new and changed patterns of life and its ambitions. Reserves of energy that the villagers have could be canalised into nation-building channels. Regarding farm management—now recognised to be a distinctly significant subject—it may be observed that the principles of relative and comparative advantages are usually applied to farm enterprises, though the farmer may be unaware of the same. The peasant must look ahead with vision and assess the plans accordingly with imagination: judicious selection of the enterprises must be made, as also a judicious combination. The problem of location, theoretical as it is, is indeed complicated: several determinants of location are underlined, for no single theory is satisfactory. Location may, as well, be the resultant of forces —institutional, traditional, habitual and customary. Changes in ownership and tenancy are also frequent, making it difficult to generalise on the valuation of the farms, and their selection. Noticeable, however, is the fact, that farmlands are a distinct form of property—hence the principle of evaluation must needs be applied with caution. In short, it can be maintained that acquaintance with organisation of agriculture is essential to the appreciation of the analytical issues. What must be detected is the trend and direction of the new dynamism in the rural society for a proper understanding of the same would enable the planner and the policy-maker to guide and motivate correctly the agriculturists. A distinction must be made between the *firm* and the *farm* at this stage: the former may register rapid change, which in the latter may be gradual. Even in the locational problems, it is the organisational considerations that predominate. The valuation of farm property, too, could be described as a function of the management, better equalisation of land prices, and of production.

Production and Nature:

CHAPTER IV attacks the problem from different viewpoints: the production angle, that of natural resources, and the problems of land usage. Distinctions between the various terms are made, with special reference to adjusting farm production. In the section "natural resources", the economic aspects and the law of diminishing returns are especially studied. The economics of land usage views this important problem from the angles of acquisition, usage, cultivation, the conflicts between the private and the public uses, and the urban and the rural ones. Certain practical conclusions emerge: output is important from the individual and the national points of view, but actually greater stress is laid on the latter, by the provision of suitable attractives. Production policy must fall in line with the principles of long-run maximum productivity: hence, production plans must fit in the general framework of national production policies, and close integration between the agricultural and the non-agricultural sectors is strongly indicated. But the farmer 'could not be expected to change his systems and schemes, with the varying market needs and trends, as his production is more inelastic than its non-agricultural counterpart. Methods of adjustment must be such as to enable him to make alterations without much disturbance: the theory of adjustment needs be studied in this context. Among the natural resources, land is the most important and the most indispensable, for without land, production could not be initiated. And land includes the other natural resources endowed on it. The usage of land is governed by the laws of relative and comparative advantages, and also the considerations of welfare economics. From the land point of view, it is proper to diversify its uses, so that it gets exhausted slowly. It is the blind pursuit of the profit motive by the agriculturists, that gives rise to the conflicts between the private and the public uses of land: they should be made socially conscious to envision the problem from the wider angles. Extra discrete should be the planners, the policy-makers, and the administrators, in guiding the usage of land, which is, both quantitatively and qualitatively, limited and scarce. From the wider national angle, the whole country should be looked at as if it were one single enterprise: what maximises the national income, and also what the costs are to the nation of the various alternative uses, should be gauged. Advisedly, national budgets (and these may be in terms of receipts and cost of land use) may be framed. Caution should be exercised so that the future generations do not suffer depletion in the fertility of land: this could be done by the provision of suitable attractives. Proper, and accurate exploitation of the natural resources is what is pertinent in the economic sense.

The Problems of Labour:

The next agent of production is labour, the only human agent. Due to the important role this factor plays in any act of production a full chapter has been devoted to it. Two sections covered the problem: "the human basis" and "labour in agriculture". While the first section discusses the problem from the human angle, the second does from the detached objective one. Starting with a distinction as between the various functions on the farms, the argument switches on to describe the various agricultural jobs, and the role of labour in farming. The problems of supply and demand, in relation to labour are next delineated, as also the general labour issues, with a bias on the human aspect. The various trends of thought are picked up in the next section, and woven into an analytical survey of the rural work, with a look into the scientific labour management. The issue of work simplification is thrashed out and the urbanisation effects traced. In CHAPTER V, unlike in others, the scope is much restricted: to a discussion of the human problems of agricultural labour. The nature and character of the agricultural labour problems is different from those of the other sectors: the demand for labour is not the same, for it varies seasonally, while limited is the scope of division of labour in farming. Mechanisation has brought more problems in its train than it has solved: hence work simplification is advised, and not mechanisation. The seasonal and the supplementary demands for labour which should be all-round in its capacity and efficiency also raise special difficulties. Labour supply is tending to increase, especially in the backward areas, where the Maltusian law does prevail as nowhere else. But in mature and advanced economies, mechanisation is called for to meet the labour shortage, intensified by urbanisation, and economic diversification which are very marked trends. The farm labour market is mainly seasonal: this raises further complications. Fortunately, rural work is punctuated with certain satisfactions of a human character, with the result that there is an element of producers' surplus in agriculture. Still, the economic disparities do persist in regard to the earnings of agricultural and non-agricultural labour (even in the rural areas) and of rural and urban labour. Landless labour is a very serious problem, and must be urgently dealt with. But it need not cause pessimism; for growing consciousness of labour and that of the policy-makers, could not but result in measures designed to improve the lot of agricutural labour. Man is vocal, has likes and dislikes, with the result that he can not be treated like other agents of production. The multiplication of welfare activities is what is very essential.

The Production Effort:

In CHAPTER VI, three allied subjects, bearing on the same topic are discussed: capital and equipment, the aportionment of the productive factors, and the unit of production. First section has defined, distinguished and classified the various forms of capital and equipment. The main characteristics of the investments on the farms are noticed, in respect of their efficiency and capacity—the twin factors responsible for productivity. Economic implications of the employment of machinery on farming are studied, now from the production angle. Allied to production problems, and emanating from them, is that of apportionment of the productive factors, which are selected on the basis of their efficiency and capacity and then combined. In this regard, the law of variable proportions is invoked, as being the only trend operative in all farm enterprises. Next are studied the issues of farming costs, with their practical implications for the apportionment of the productive factors. What the size of the unit of production should be, from the economic angles, is discussed in the following section. Different farms are suitable for different farmers: in this connection the determinants of the size of farms have been enumerated. Size need not determine the scale of farming. Distinctions obtain between the unit of organisation, of operation, of dynamic production, and the optimum unit. The role of capital and equipment in agriculture is of growing importance: due to the increasing pace of innovations and technique. Still, the intensive character of farming persists, especially in the less developed economies. In adjudging the productivity of capital, the twin factors—efficiency and capacity—must be taken into account. In agriculture, the range of efficiency and capacity is fairly wide in capital goods. The application of capital to agriculture is gainful, if cautiously employed.

The apportionment of the productive factors is mainly determined by the laws of variable proportions and of substitution. Another maxim is that factors of equal capacity and efficiency should be combined in order to maximise productivity. But the farmer's guide is his practical experience in the past, for he does not have the training to be able to weight precisely the capacity and efficiency measures of the productive factors; he succeeds by emulating the other more successful peasants. In his production effort, the unit of production, or the size of the holding plays a vital role. Theoretically, the farmer should aim at achieving the optimum unit and not the organisational or the operational unit; this is difficult in view of the fact that the farmer is unable to change the unit he has. The optimum unit is that which utilises the productive factors optimally. Practically, he can have the best (possible) unit of production. From the production viewpoint, the trend to work simplifying mechanical appliances should be encouraged, while the popularisation of agricultural paper is equally promising. Farm equipment should be as ubiquitous as possible, and should be discriminately employed so as not to raise problems for farmers.

The Sharing of Produce:

Two issues are discussed in CHAPTER VII: of ownerships and tenancy, and of the distribution of agricultural produce among the productive factors. A description of the modern land tenures, and explanation of certain common terms introduced this subject. In the economic analysis of tenancy, it has been established that agricultural relations depend upon the tenant-landlord attitudes. Various types of leases are prevalent in respect of tenancy: in this light the impact of tenancy on the society is studied. The analysis of distribution is initiated with introductory theoretical considerations; it delves into the theories of rent, of profits, of wages and the rate of interest: the problem of distribution is complex indeed. The range of the topics covered is wide, for several problems touching upon the sharing of the produce have been attacked. A close examination of tenures leads to the one conclusion that tenancy should be weeded out, for out of it rise multiple complications for the peasants, the planners, the policy-makers, and even for the state: all the damping effects of the institution are enumerated. In regard to the problems of distribution, it is established that the subject must not be approached from the strictly academic angle, but from the peasant's practical point of view. Respecting rent, the Marshallian explanation seems to be appropriate, while there is growing concensus of opinion that rent need not be treated on a different plane. But, profits could not be precisely distinguished from rent, for most farming enterprises are family and subsistence types. To explain wages in agriculture, the residual claimant theory was invoked; the famer is the last man to be paid: this is especially true of the family farmer. Regulation of wages is an uphill task in agriculture, due to its special characteristics. The rate of interest does not appear to be determined within the Keynesian framework, but more in accord with the "loanable funds theory", expounded by Professor Bains. On the whole, the actual determination of the rate of interest is settled by the forces of tradition and custom, as modified by the monopolistic hold of the moneylender. In short, the distribution theories apply to agriculture but with serious limitations, and are hedged in by many exceptions—the process is rather confused and complex. Marked are the iniquities of the distribution of wealth and income in the agricultural sector: now that the rural masses are growing conscious of this fact, it is imperative that something must be done to iron out these inequalities there.

The Process of Pricing:

Marketing and pricing are the two subjects under discussion. For agriculture, marketing is rather a cumbersome process, because there are persistent certain peculiarities of the produce of farms. The services, the institutions, and the costs of marketing have been analysed. Cooperative marketing seems to be the only remedy for the various agricultural ills which could be mitigated to a great extent, also by the perfection of intelligence, estimating and forecasting services. The process of adjustment by pricing, has been examined in the light of the fundamentals of price-fixing, the inter-relation of prices and costs, the role of the markets therein, and the price policies. The measurement of the price level by index numbers, and its utility is explained. From the analytical and the planning viewpoints CHAPTER VIII is quite significant: marketing and pricing, between themselves determine the actual incomes of the peasant, and the profitability of the agrarian enterprises. In the marketing procedures, the middleman appears to be holding his own, while his charges are uncomfortably high. Cooperativisation of the marketing organisation could dispense with him and make the system more efficient and remunerative, too. Even now the marketing costs are on the decline, due to the operation of the legislative measures of a regulatory nature, and also because of the standardisation efforts. Adjustments and adaptations in the agricultural sector can be more facile if the marketing organisation becomes more efficient but less corrupt. Pricing is now attracting far more attention than ever before, due to the widening operation of money even in the backward economies. The theory of value is applicable to agriculture now more effectively than before, for the same reason. In the agricultural sector, theoretically speaking, there do not persist disparities in market and normal prices. Again the price-cost relations in this sector are not little different than from these in other sectors. *Price policy* is studied in the light of the roles of *multiple, flexible, controlled* and *competitive prices*, as also in respect of guarantees and compensations to farmers, as a result of the policies. Marked are the time lags, and other deviations from the theoretical analysis in agricultural pricing. So far, the price policies have been sluggish in their impact and implementation: this attitude must be shed, for the policy-maker should plan ahead of the trends, which the expert should be able to recognise. The aim of the price policy is to secure the optimum unit of production in agriculture, even out the instabilities of agriculture, and above all, remunerate the peasant and his enterprise so that the same does not suffer in any respect. It may be held that pricing policies, in so far as applicable to agriculture, are relevant to welfare.

Stability and Finance:

Problems of maladjustment remain even after the effort to secure adjustment through pricing has been made, for the nature of the agrarian enterprises does not admit of immediate and painless adaptation. Most of the forces, operating on the farms are beyond the control of the peasant; and, therefore, nullify his efforts at change. Hence, two sections in CHAPTER IX discuss the problems of fluctuations and finances in the agricultural sectors. Initiating the discussion with a description of the general theoretical analysis in respect of cyclical fluctuation the reader is led on to appreciate the characteristics of agricultural instabilities, and their types: seasonal, cyclical, and other variants. The course and the phases of the general agricultural cycles are detailed, with special reference to the income aspect, and measures, advised for countering the cycles. Naturally, the evil repercussions of the instabilities, inherent in agriculture, and attendant upon this pursuit, have to be alleviated by means of adequate financing. Farmers are always in need of monetary assistance due to their low reserves and inadequate staying power. They have differential financial needs, which have been underlined, with special reference to the lending limits of the agencies of finance. In the business of finance, social and legal aspects are significant, for they shape agricultural relations derived from lending and borrowing. The loans problem in relation to the long-term and other forms of lending is studied. Marketing and co-operative finance are other topics which have been attacked in this chapter. The insurance needs of the peasant are assessed next, and the value of insurance services stressed: they are now expanding and reducing the farming hazard. No single explanation could be given of the agricultural instabilities, but two fundamental factors are: the relative inelasticities inherent in agricultural demand and supply, and the influence of the unpredictable (natural) forces operative therein. Farmers' real incomes depend upon the exchange terms of the peasants with the outside world—and these are usually to their disadvantage. Immediate and long-term remedies have to be applied, for they are both effective as palliative and preventive measures. The extension of the co-operative movement is strongly advised as being a source of strength and stability to the farmers and their trade. For financing, the state is the most effective agency, but the least popular due to its red-tapist character and slow administrative machinery. The institutionalising of finance is expected to bestow on the peasantry inestimable benefits, in respect of both the cost (interest and incidental charges) and the availability, at the right time and in the right amounts. Attention needs to be rivetted to the market aspects of the financial problems. Financing the marketing operations is equally essential to the success of the agricultural enterprises. Insurance provides financial assistance in emergencies: it must be extended further.

The Linkage:

From the above bird's eye-view of the problems of agriculture from the economic angle, it is established that there is the same thread running through the argument: agriculture is characterised by economic inelasticities and instabilities (of demand, supply, and costs), while the social, traditional, and economic factors shape the farmer's activities in a very significant manner, with the result that the peasant is just a creature of the circumstances. To uplift him is no small task, but one fraught with delicate calculations, for with the slightest neglect, the peasant is apt to creep back into his own shell. To these characteristics must also be added the inherent trends in agriculture (again from the economic angle): the law of diminishing returns, operative as a result of Nature's domination on the agricultural and the allied enterprises, and the personality of the peasant. The compensations for the peasant are provided by the creative nature of the job he performs, and the independence of the outlook that he can afford to have. But fundamentally speaking, agriculture is basic to all the other enterprises, it is the primary avocation, and necessary to bring balance and self-sufficiency (at least in the matter of food) into the economy. In this light the reader is brought face to face with the problem of prospectiveness herein.

THE FARM PERSPECTIVES:

This section peeps into the future. All welfare movements seek to elevate the standards of living of the peasantry rather than those of production only. It is the future of the farmers and

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not that of agriculture that is important for the welfare of the community, and of the economy. The betterment of the farming communities being achieved, the uplift of a major part of the world will be realised. A preview of the situation in this context is given, to be followed by an examination of the all-important topic of state activities in respect of agriculture: the farmers' status in the social setup is delineated. In this connection, the co-operatives, are destined to play an important part: their activities, roles and limits are examined below, with special reference to the types, organisations and objectives of the movement. But material are the attitudes of the peasants who must be able to view the problems and the perspectives favourably and not with suspicion. Also are included suggestions for the reduction of the inequalities of wealth and income, till now persistent in the agrarian societies. Closely related to these are policies for improving the living standards, directing population movements, and controlling the impact and incidence of prices on the peasant's motivation. Still many problems remain unnoticed, not because they are insoluble, but simply because they fall outside the purview of this elementary probe into economics of agriculture.

The Farmer:

The growth of national wealth and productivity influences the peasant who can look forward to bring to his own environment, the modern amenities of living. Bigger and better opportunities for wholesome living are being provided to villagers. Emphasis is now shifting to better living, even in the agricultural sector: hence better organisation of village life is called for, and the need for proper direction and guidance, and the inculcation of a proper approach to the agricultural problems and policies. In this connection, mention must be made of the aspirations in the agricultural sector: landless labourers' ambitions of rising up the social ladder, the tenants' hopes of becoming cultivating owners, peasants' desires of achieving stability in his economic ventures, and the planners' efforts of improving the agricultural environment as a whole. But against these must be set the social, economic and even political resistances and fears, generated among the people concerned. It needs to be pointed out that the movement to raise living standards in this sector, is not just motivated by philanthropic motives, but is well-calculated to stabilise the very foundations of the national economy, remove the social inequalities, and reform the maladjusted relations in the countryside. Urbanites, too, may gain from a reorganisation of the rural society. The lines of development have to follow those indicated by research which is necessary for a correct diagnosis. In spite of the acknowledged need for improving the lot of the agricultural areas, comparatively little is known about these areas; hence more information is urgently called for. No generalisations could be hazarded for there is a great diversity of conditions in the different regions. Agricultural surveys, factual censuses, and specific investigations are all relevant to a study of these problems in details. But it is to be remembered that each community should build up its own structure on its own indigenous foundations, and not merely ape the other more advanced ones. The role of the independent agencies needs be emphasized, for the element of bias is sought to be eliminated to a great extent in their investigations. In this respect, educational and academic institutions could play an active and useful role. But this campaign should be well-planned, and co-ordinated to be of some real use. Attention must be devoted to the environmental aspects of the agricultural set-up, for two reasons; the farmer is a creature of his environments, and is a slave of the traditions and customs prevailing therein. It is well to recognise the role of the family, which is the basis of the social organisation, and also the unit of operation. Better living at home does inject efficiency into the farm business. And the household must be established and rescued from the disintegrating influences, invading family life in the urban societies. The study of the neighbourhood is also relevant to an understanding of the problems: this loose and incoherent organisation influences the agricultural society much. Other influences are those of religion, and institutions, which mould the agriculturists' outlook on life; and hence, determine their motivations. Technical improvements could thrive only in a sympathetic climate: hence the whole social fabric has to be improved, and not attacked piecemeal. The more important institutions refer to education, business and society, religion and health. Business institutions affect the economic conditions of the peasantry, while the religious, educational, and social ones influence his outlook; and the health agencies, his physical well-being. Though from the economic viewpoint, it is the business, economic and political institutions that matter, yet the others have also an indirect say on his economic welfare. Religion, especially, is a powerful force in agricultural societies, for the peasants are the most religious of all the people. Legislative and political (and administrative) policies are noticeable in this context. State activities extend to the tax structure in the agrarian sphere, while the legal framework is increasingly shaping the lives of the peasants. But bad laws are worse than none, for they demoralise the people who may lose their faith in the state policies.

State and Agriculture:

The government's policy towards agriculture is of relevance to the development of agriculture. The State may directly intervene in agricultural activities and relations or indirectly offer some measures holding out certain attractives, and incentives to the farmers to act along certain lines of activity. The agricultural economic policy must fit in with the general economy of the nation. In regard to state intervention in the agrarian sphere, it may be said that it should be directed to smoothing out the maladjustments in the working of the economic relations, and to weeding out the inequities in the socio-economic structure. Intervention is necessitated by the special needs of agriculture, which is generally a small scale industry, with small entrepreneurs who are not able to withstand competition from moneyed classes, and are thus easily exposed to exploitation. Its depressed state, fluctuating prices, characteristic instabilities, social and political considerations, and above all, unprogressive attitudes of the peasants invite intervention from the state. Agricultural policies may embrace a vast field of official activity and direction: broadly, they should aim at the multiplication of the economic opportunities in this sector and the ironing out of social inequalities therein. On a deailed examination, production policies appear to be the most important among these: the welfare states direct their efforts at increasing the production potential of agriculture. A proper land tenure system would contribute effectively to the increase of productive activity. Deficiencies in the productive apparatus have also to be made good, in order to enhance production. Intervention, too, is called for to lower the costs of marketing: regulation of the market deals, standardisation of weights and measures, provision of the storage facilities, and the dissemination of the market intelligence, are some of the measures suggested. In short, the objective is to ensure adequate profit margins for the primary producers. The next plank of state policy towards agriculture is the utilisation of its resources in such a manner as to secure the optimum allocation of these *vis-a-vis* the whole economy. Not merely this, it is essential to provide a mechanism for this purpose. Both the consumers and the producers are benefitted. Similar ends could be achieved by the encouragement and the initiation of the scientific practices in tilling, while advising farmers what crops to grow. Economic motivation could be welded towards this end: compensations and subsidies also play their part. And then agricultural protection may be equally necessary for rescuing agriculture from foreign competition, immunising the system against "imported" fluctuations and cycles, or protecting certain agricultural produce and encouraging its cultivation. Transference of economic benefit is possible by the appropriate fiscal and monetary measures: suitable policies for this purpose may be devised. Protection may extend to wages and incomes: but it is easier said than done. Sometimes production may have to be restricted to raise prices and incomes. But other policies may be launched to multiply employment opportunities by following suitable policies. Direct subsidies to agriculture can be more beneficial to the agriculturists in a greater measures than other forms of fiscal aid, for they could be so devised as to suit regional needs and mitigate the hardships caused by fluctuations, as also to enable agriculturists in resisting the same, and overcoming their own resistances in sowing certain crops and undertaking some enterprises. The effect of these measures is to bring about the necessary adjustments in agriculture. The subsidies may be discriminary, selective or general in their character, as precalculated.

The Cooperative Movements:

For most of the ills of agriculture, and its deficiencies and weaknesses, the oft-prescribed remedy is co-operativisation. Co-operation emanates out of the pursuit of unselfish and mutual interests and bonds of participating peasants. Joint action under its banner is organised to strengthen the individual and isolated peasants, who have to resolve their problems. Common well-being is the aim of the co-operatives, as also the elimination of all types of exploitation, and the realisation of mutual benefits. Co-operatives remedy the ills of agriculture and put it on a sound financial basis, and above all, work for the member's uplift economically. Many are the forms of co-operation: farming, marketing, credit, thrift, education, reform, transport, grading and standardising. The functions of co-operatives must be definite: these depend upon their organisation, for a well-organised movement is certain to succeed. The functions must be clearly defined so that the aims be realised with definiteness. The weakest aspect is financial. Hence special attention must be paid to efficient financing of the co-operatives. Moreover, these societies, in order to succeed and steer clear of the mutual bickerings and jealousies, must be formed by eager co-operators, for success depends upon attention and interest and mutuality. The organisation must be developed (and strengthened) from within as also from without: this means that both the members and the sympathetic agencies must work zealously. The most potent pitfall is the mutual jealousies and bickerings, while weak finances may be another. A good and effective audit organisation needs be developed to keep a watchful eye on its working. The aims and ideals must not be unattainable, nor the society run on expensive lines. But co-operatives must fit in with the general framework of the planning movement.

Planning for Agriculture:

In the agricultural arena, more than anywhere else, the need for planning and co-ordination is paramount. Priorities of planning may differ from country to country, and even region to region, especially in agriculture. But the one accepted target is that of raising the standards of living—in this case, of agriculturists. The need for planning arises out of the need for co-ordination and integration in the economy: in agriculture, these objectives must be urgently realised in view of the dispersed character of the producing units, and the individualistic character of the operators. Another objective is to utilise correctly, the limited land and natural resources at the disposal of the peasant; a closely allied end is the elimination of waste and abuse. Since the basis of an economy is agriculture, planning in this sector must precede other forms of it, if only to tone up the general economic structure. But agricultural planning is not so easy as usually imagined: difficulties relate to directing millions of small producers and their units into the desired channels. Again, the ignorance of the peasants makes it difficult for them to appreciate the idea and the utility of planning: sectional and narrow interests offer another hindrance. The peasants' prejudices and local loyalties have to be overcome by all planners. Planning could assume many forms: totalitarian (reducing the peasants to mere cogs) regimented (subordinating the peasants' interests to other "superior" vested interests) arbitrary (imposed from above) and democratic (wherein the democratic procedure is accepted and followed in the realm of planning). But no planning could be successful unless the full participation of the peasant is ensured at all stages. Still, the essence of all planning is the ability to mobilize the economy in a well-integrated and correctly co-ordinated manner, for these are the two bases on which the edifice of planning is generally built up. Integration of agricultural structures must be both from within and without (integration of the different units towards an accepted common objective) and with the rest of the economy. Co-ordination with the other sectors is also called for. Two types of integration are: horizontal and vertical, the former referring to fusion of similar stages of production; and the latter to the different stages of it. Much depends upon the vision and imagination of the planning authorites, as also its set-up and structure. The amount of confidence it evokes in the peoples' minds can spell success or failure for it. With centralised authority, regional interests may be lost sight of, while under completely decentralised planning, there may be lacking that oneness of approach which is so necessary for the attainment of the accepted ends. A compromise is, therefore, necessary. Rural attitudes—and for that matter the outlook of the people in general—count for much in this venture of planning: negatively the suspicions of the ruralites must be conquered, and positively, they must be inspired to canalise their energies to the desired ends. They should not suffer from mere sluggishness but must march in step with their more advanced brethern. Great stress is laid, in this context, on the participation by the peasants in the planning movement. Some initiative may be left for them to work upon so that they can also feel the benefits of planning: there may be devised some schemes which they may think out and implement all by themselves, so that they could have the freedom to make mistakes, as also enjoy themselves with the sense of achievement and satisfaction, arising therefrom.

The Future:

Broadly and crudely viewed, the future is determined by the way in which the national income is distributed as between the agricultural and the non-agricultural sectors. Another determinant is the price ratio, on which rest the terms of trade between agriculturists and others. Again, the character of agriculture must undergo a definite change so that it is broadbased, and not run on merely subsistence and unscientific lines. The problems relate to maldistribution of income, and of wealth, the price and other disparities, and the natural trend towards diminishing returns—all these put the peasant at a comparative disadvantage. Inequalities and unfavourable price ratios haunt the agricultural sector: adverse price ratios affect the real income of the peasant in an equally adverse manner; and, often, deplete his resources and damp his workability, and motivation. There is thus required an equitable distribution of population, resources, and capital between the agricultural and the other sectors, in accordance with the principle of maximisation of welfare, or maximum social advantage. Also, must be undertaken measures to combat the operation of the law of diminishing returns, so that the trend to rising costs may be neutralised: this is done by modernising agriculture and running it on scientific lines. Another serious problem for the future is precipitated by the lower standards of living among the farming communities; sometimes these standards are abysmally sub-human. This fact drains away the enterprising spirit from agriculture, and leads to consequential disinvestment there. Though something could be done by eliminating waste and misdirected effort, this alone would be insufficient. Extension services could, as well, be useful—more of this below. Disparities as between agriculture and other sectors, and between the city and the country do persist to the disadvantage of agriculture. These are real, and not merely expressed in terms of income or money. They could be eased by the extension of the civic amenities to the rural areas, and to the agriculturists in particular. But above all, the farmers must be provided with ampler economic and social opportunities, so that they can lead a fuller life. Probably a comparative study of the living conditions in both the sectors would serve as an eye-opener. Population movements are of considerable significance for agriculture, in view of the high pressures of population on land. Two types of such movements could be distinguished: those of an absolute nature (growth etc.) and those relating to migration to the towns from the villages. Absolutely speaking, the villagers are breeding faster, and among them the agriculturists—Malthus seems to hold his sway over them. The urbanward movement of the rural population comprises the adventurous and rich sections of the rural people, thus depleting them of these resourceful men, and investible funds. Hence, their future must, also, take stock of this fact: the remedy appears to be to increase the economic and the employment opportunities in the sphere of rural work and agriculture. Still, the most pressing issue is that of raising the living standards of agriculturists. The modern thinking in Economics disfavours competition (for that leads to exploitation or combinations) and favours co-operation instead. What form this co-operativisation should take is to be determined by the operation of the local forces and needs. Still, it may be stressed that all this should be evolutionary and not an infliction from above. The problem, therefore, must be attacked, not in a hasty and isolated manner, but in a composite fashion, without losing sight of the local and individually communal needs and aspirations. A watchful eye must be kept on social and economic justice about which the peasant is conscious now, as never before.

Farming Perspectives:

The future of the peasant and agriculture could only be brightened by concerted action, firstly in cultivation, then in marketing and lastly in the allied processing and other agricultural industries. In the second stage, this step is indicated in the industrial sector and other non-agricultural pursuits, so that there is co-ordination between the primary and the secondary and the tertiary callings. But underlying these must be the unity of approach and thought for national uplift and progress—not the usual sectoral approach. Economic policies should be geared to these ends by means of mutual consultations and confidence, for if they inspire confidence among the peasants, they are easy of implementation, while assuring fuller participation and assistance from them. Reference, in this connection, may be made to the extension services, which have been launched with a view to improving the tone of agriculture. They are designed to put him on the right path and show him how to utilise his limited resources to the best possible. The problem can be tackled by improving agricuture itself: practical aspects of science be made available to the peasant; the next step is to better the health of the peasant, for without it, he is not able to hazard the freaks of Nature: he must acquire hygienic habits. Illiteracy and ignorance must be fought out, for they narrow his vision and make his mind non-receptive to new ideas, and, always, enslave him to a traditional superstitious way of life: rural schools could be improved by inclusion in them the adult curriculum and not insisting upon the three R's only. Next step is to make available to him the latest in science so as to ensure that he is able to apply it to his agricultural problems and solve them independently: this is done by experts who can adapt the scientific know-how to rural conditions, with which they must be very fully conversant. And above all, the essential is to operate a total programme instead of applying it in patches, or in an isolated fashion, for no farmer (and for that no human being) could be expected to tackle his problems in a piecemeal manner: life is to be treated as one whole and not a patchwork composed of several different activities: hence the agriculturists' problems must be attacked on all fronts so that no weak spot infects the agrarian social fabric, nor any loopholes left out, for any misgiving to creep in.

SUMMARY AND CONCLUSIONS:

This chapter is the culmination of this brief survey of agricultural economics. While the first section is devoted to the summing up of the foregoing chapters and spotlighting the main points therein, the second section touches upon the problems bearing upon policy in agriculture, so that it could lift out of the morass in which it finds itself at present. The status of the farmers, in agriculture and in the village society as also in the general economy, is delineated; this is followed by an analysis of the state's role in agriculture. A brief review of the problems of the co-operative movement has been attempted, for the present trend of thinking in economic policy is favourable to co-operativisation. The planning movement—its objectives, types and methods—is examined next, with special reference to agriculture: the role of the popular attitudes, and the participation of the agriculturists in the planning movement is stressed while a peep into the future of the agricultural communities and agriculture is provided in the last paragraph of the section. In details, the argument scrutinises the rural aspects in their multiple forms, the relevant significance of research and investigation for the reorganisation of agriculture, the environmental effect of the community in the agricultural sector, the part played by the rural institutions in shaping agriculture and the limits of legislation and state policy. State's role in respect of agriculture is also examined: special focus is on the types and methods of intervention by the government, the underlying bases of the state agricultural policies in production, marketing (and distribution) and the allocation of agriculturists' resources to achieving welfare. The importance and necessity of agricultural protection is underlined: its different forms enumerated and their relative significance stressed, with a passing reference to agricultural subsidies. The co-operative movement attracts attention: its scope and objectives (as far as agriculture is concerned) its various types and variants, organisation and functions, and the determinants of its success, together with the pitfalls and dangers attendant upon the movement, are also thrashed out. Agricultural planning is the next subject under spotlight: the need for planning, the difficulties (that are specially experienced in the agricultural sector) the form of planning and its essentials (integration and co-ordination) and the planning authority's composition and character. In the context of agrarian planning are to be taken into account the attitudes of the people (for whom this movement is designed) and the possibilities of their participation in it. The probe into the future is initiated with a statement of the main problem which centres round the issues of inequalities arising out of price-ratios (exchange terms between the peasants and others) disparities between agricultural and other earnings, and those arising out of differentials of income and wealth. Standards of living of the agriculturists must be raised to the same level as those engaged in the secondary and the tertiary industries; at least the farmers must be lifted out of their sub-human and subsistence standards, in which they are stuck up at present, in the older economies. Disparities between the country and the city have also to be removed: observation has it that disparities persist as between the agricultural and the non-agricultural sectors in the village and also between the rural and the urban sectors. These must be ironed out in regard to population movements—absolute and migratory—which are to the disadvantage of the agriculturists: the advice is that employment opportunities be multiplied in the agricultural sector, particularly in the rural areas. Ruralisation of industries may also be a good remedial measure. It is not proper to encourage competition among the farmers, for that may lead to combinations or exploitation of the weak—instead, co-operativisation is proposed by all shades of thought. On the whole, concerted action is called for: the problem must be viewed as a whole and not in parts. Stress is laid on the role of the extension services, which must have a seven-fold programme: this same was outlined above in the last paragraph: this is essential for uplift.

Agricultural Welfare:

The above analysis points to the dynamism of the agricultural economy: but admittedly, the survey has been selective, though this fact may not have much detracted from its utility. To the peasant, the pursuit of agriculture is not only a vocation, but also a way of life. Hence, the crux of the problem is not merely economic but also social and sociological. And above all, the human relationships outweigh any other consideration in the agricultural sector, for howsoever individualistic and dispersed farmers may be,

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they, still, have their lives coloured with an intensely communal living. Two things appear to be indispensable to the welfare of the peasants and the tillers of the soil: the local leadership should be evaluated and so trained that it may be emulated, and secondly that haste should be made slowly. The leadership problem is quite relevant to the welfare of the agricultural community, though the issues are complicated, too. And, if hasty steps are taken, the peasant, suspicious as he is, may creep back to his shell, with desperate and demoralising results: hence the advice is "make haste slowly". The above analytical survey is only to awaken the student and the layman to the complexities of agricultural welfare, and not to sermonize to him: if this aim is realised, the author is amply rewarded.

* * *

SELECT QUESTIONS AND EXERCISES:

1. Bring out the role of the farmer in his own and agricultural welfare.
2. Assess the implications of the environmental effect on agriculture.
3. What part do rural institutions play in the agriculturists' attitudes. What steps would you advice may be taken in order to mould their attitudes?
4. Ascribe to agricultural legislation and policy, their role and limits.
5. Give the different forms of state intervention in agriculture.
6. Outline the nature and constituents of agricultural policies, with special reference to production, marketing, diversion, of resources, and protection.
7. Examine, critically, the cooperativisation effort in agriculture, bringing out its scope, types, organisation, functions, pitfalls and dangers.
8. Survey, in brief, the implication of planning in agriculture.
9. How is the economic problem in agriculture different from that in the other sectors? Refer specially to the less developed countries.
10. Estimate the part played by the extension services in revitalising agriculture, and putting it on a firmer basis. Give your suggestions.

THE END

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